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Some monthly periodicals will have to have more than one December issue (designated December 1983 [1], December 1983 [2], etc.). Once the bulk of the data in these periodicals is vintage January 1984 the periodical will be dated January 1984. In the case of the *Petroleum Supply Monthly*, for example, there will be three "December 1983" issues; the January 1984 issue will be published in April. Other monthly periodicals will follow similar procedures.

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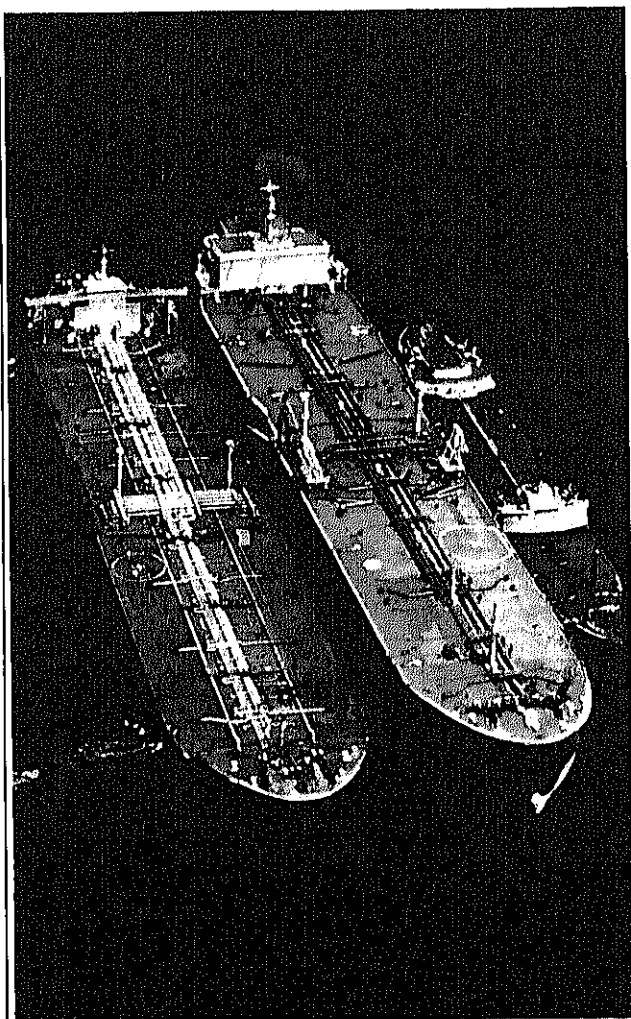
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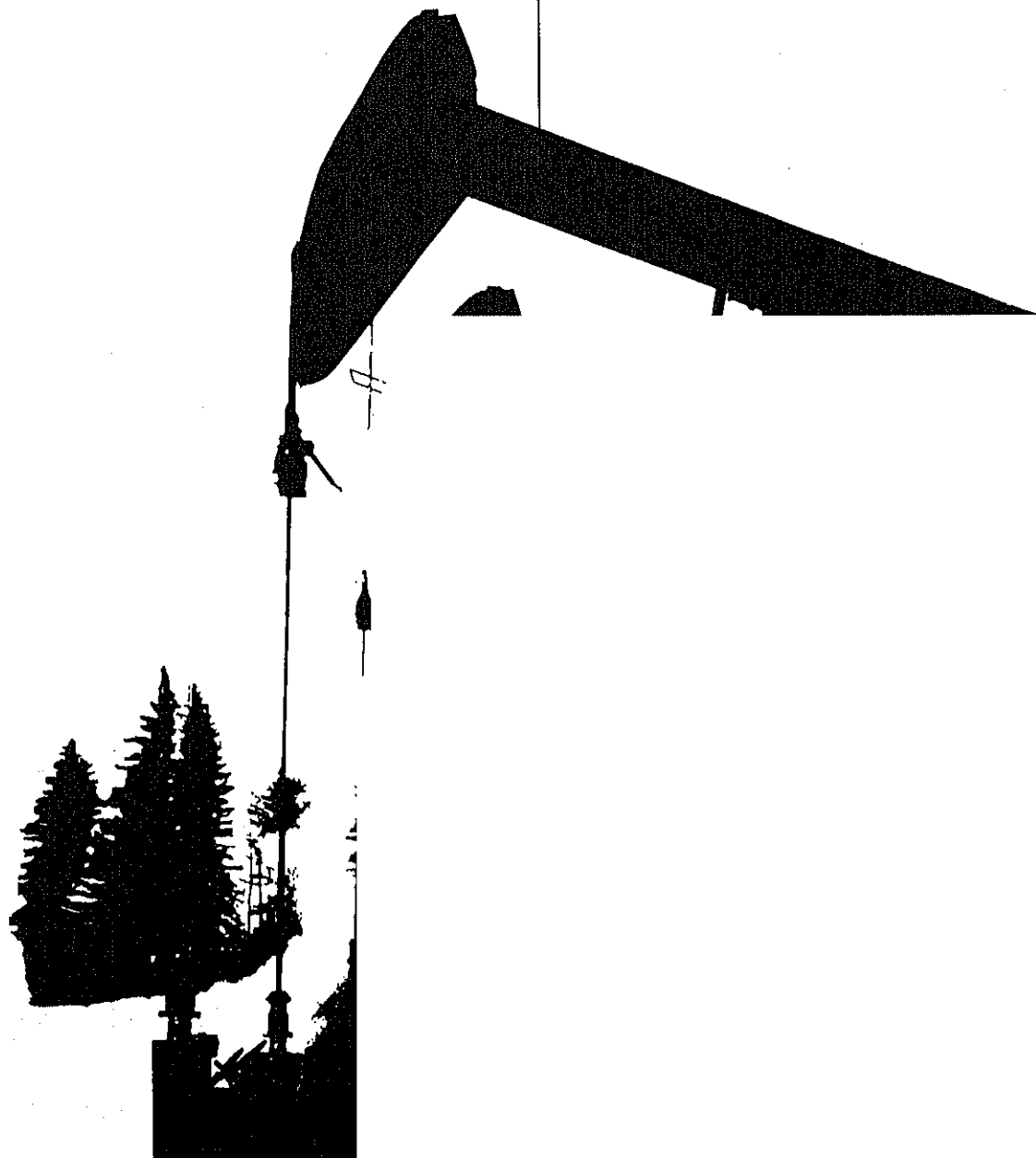
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Petroleum Focus



Petroleum Supply Summary

Average Volume for Period (Million Barrels Per Day)	January		% Change
	1984	1983	
Products Supplied			
Motor Gasoline	6.5	6.0	8.4
Distillate Fuel Oil	3.7	2.8	33.8
Residual Fuel Oil	1.8	1.6	13.5
Other Products	5.1	4.5	15.2
Total	17.1	14.8	15.8
Crude Inputs to Refineries	11.6	11.1	5.1
Production			
Crude Oil, Natural Gas Liquids, and Other ¹	10.3	10.4	- 0.8
Imports			
Crude Oil ²	3.0	2.7	11.0
SPR	0.2	0.2	- 25.6
Products	2.0	1.4	37.0
Total	5.1	4.4	17.7
Exports			
Crude Oil	0.2	0.1	40.2
Products	0.6	0.9	- 32.8
Total	0.7	1.0	- 24.0
Stock Withdrawal			
Crude Oil ²	0.2	- 0.3	—
Products	1.7	0.9	—
Stocks at End of Period (Million Barrels)			
Crude Oil			
SPR	385	301	28.0
Other	344	361	- 4.8
Total	728	661	10.1
Products			
Motor Gasoline ³	222	251	- 11.6
Distillate Fuel Oil	117	168	- 30.2
Residual Fuel Oil	41	61	- 32.1
Other	313	312	0.6
Total	694	791	- 12.3
Total Crude Oil and Products	1,422	1,453	- 2.1

1 Includes alcohol and other hydrocarbon liquids.

2 Excludes Strategic Petroleum Reserve (SPR).

3 Including blending components.

NM = Not meaningful due to new stock basis.

(s) = Less than 0.05 million barrels per day.

NOTE: Percent changes are based on unrounded values. January 1984 data are estimates based on weekly data, except for exports, NGL production, other hydrocarbons, and alcohol estimates, which are December 1983 monthly values. Totals may not be equal to sum of components due to independent rounding.

Source: Energy Information Administration, Petroleum Supply Monthly, December 1983 (3).

An Overview of Petroleum Transportation

The challenge of petroleum transportation is to minimize costs associated with the movement of crude oil to refineries and petroleum products to consumers. The petroleum industry cannot control the location of oil fields or final consumption, but needs an efficient transportation system between these points. Because the origins and destinations are widely scattered, a tree-shaped distribution system has developed, with roots in various oil fields bringing oil to refineries at the trunk, and branches distributing products to consumers throughout the Nation. While few consumers see the vast network of pipelines, ships, barges, railroads, and trucks connecting them with the oil fields of the world, transportation costs (including international shipping costs) add about 10 percent to consumer prices of refined petroleum products.

This article describes the development of the U.S. petroleum transportation system; it also focuses on petroleum transportation modes, costs, and current trends. The accompanying figures illustrate the relative roles of the various domestic transportation modes, comparing them on the basis of ton-miles¹ transported; illustrate the range of costs for the dominant petroleum

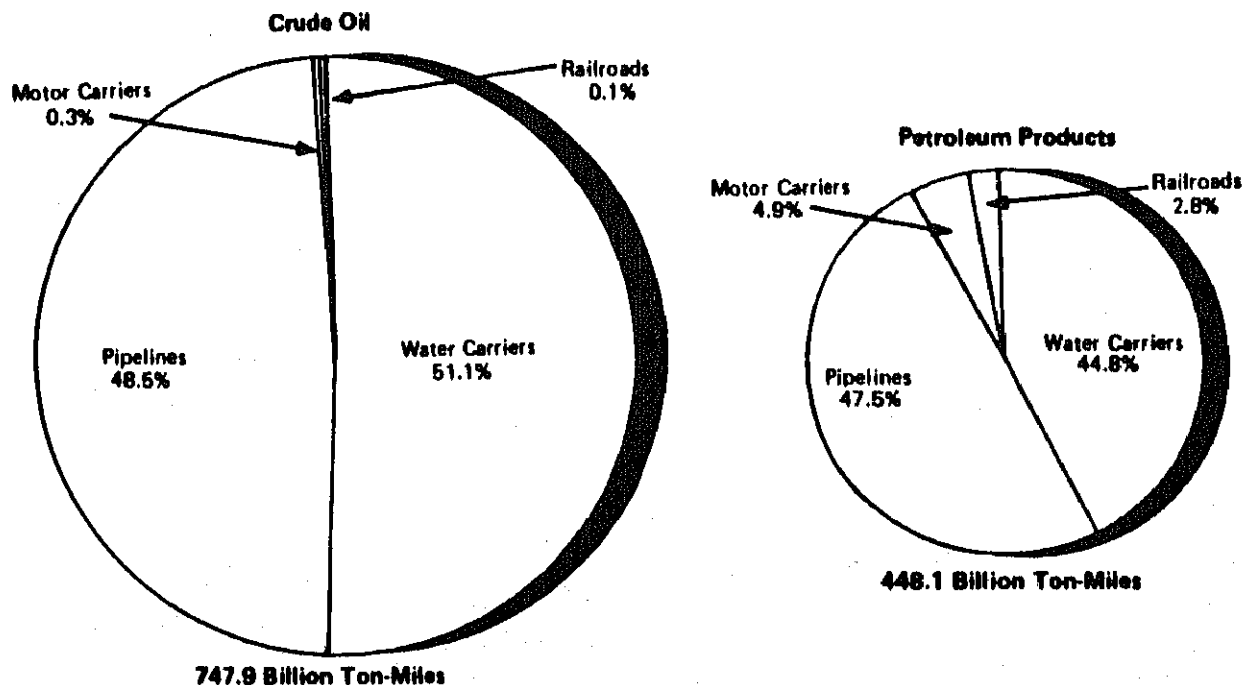
transportation modes and how economies of scale affect those costs; trace historical trends in crude oil supply and disposition; and illustrate recent shifts in the relative positions of the two dominant domestic crude oil transportation modes.

Transportation Network

Generally, small diameter pipeline gathering systems transport crude oil first from producing wells to lease storage tanks, and then to storage terminals. From these terminals, crude oil is piped directly to refineries, or it is piped to ports and continues its journey by water. Pipelines and water carriers are the major segments of the distribution system bringing crude oil to refineries. Only a small amount of crude oil is trucked, usually from remote wells, to terminals or refineries. Even less crude oil is moved by rail (see Figure 1).

¹A ton-mile is the product of shipment distance and weight. For example, a 20-ton shipment that moved between places that were 1,000 miles apart is equivalent to a 100-ton shipment that moved 200 miles. Both represent 20,000 ton-miles, although they differ in weight and distance.

Figure 1. Domestic Petroleum Transportation Modes, 1982



Sources: Estimates based on "Oil and Gas Journal", Nov. 28, 1983, Nov. 22, 1982; Bureau of the Census, "Statistical Abstract of the United States," 1982-83; Association of Oil Pipelines, "Shifts in Petroleum Transportation," April 29, 1983; Energy Information Administration, "Petroleum Supply Annual," 1981-1982; Energy Information Administration, Energy Data Reports, "Crude Petroleum, Petroleum Products, and Natural Gas Liquids (Final Summary)," 1976-1980; Bureau of Mines, Mineral Industry Surveys, "Crude Petroleum, Petroleum Products, and Natural Gas Liquids, (Final Summary)," 1972-1975; Federal Railroad Administration, Carload Waybill Statistics, 1982, unpublished.

Historical Development of Petroleum Transportation

The petroleum transportation system has developed gradually over time. While the various modes have evolved according to their own market conditions and technologies, changes in one mode have also affected development of the other modes. Some highlights of this interactive development are presented below.

Pipelines

The first practical pipelines were introduced into the Pennsylvania oilfields in 1865, just 6 years after the completion of the first oil well in the United States. By 1880, pipelines were delivering crude oil to Pittsburgh, Cleveland, and New York City, despite opposition from railroads. New oil discoveries in Texas in 1901 spurred further construction of crude oil pipelines. In 1930, the first pipeline designed to carry refined products was built in the Midwest. World War II prompted the U.S. government to build the first large, long-distance crude oil and products pipelines from Texas to New York City. After the war these lines were sold and subsequently converted to natural gas transmission. Private firms began to build additional large-diameter petroleum pipelines, including product lines from the Gulf Coast to major cities on the East Coast, and a large crude oil line from the Gulf Coast to Southern Illinois. In 1977, the Trans-Alaska Pipeline, the largest long-distance U.S. pipeline, measuring 48 inches in diameter, went into operation. A 56-inch diameter pipeline linking the Louisiana Offshore Oil Port (LOOP) with onshore facilities, opened in October 1981.

Tankers

The first ship fully loaded with barrels of American crude oil, the "Elizabeth Watts," sailed for England in 1861. Just two years later an English ship transported crude oil in a hull subdivided for holding liquids. In 1885, the first ship with the essential features of a modern tanker, the "Gluckauf," was built. Its capacity was 2,300 deadweight tons (dwt).^{*} By World War I tankers averaged 8,000 dwt; after the war new tanker size stabilized at 12,500 dwt, limited by port facilities. During World War II, 152 oil tankers were sunk by German submarines off the Atlantic Coast, but after the war, coastal trade quickly resumed. The first "supertanker" was constructed in the early 1950's. The early supertankers, with capacities of 25,000 to 32,000 dwt, were quickly superseded by larger vessels. In the early 1960's the 100,000 dwt barrier was broken. In 1981, the 420,000 dwt "Seawise Giant" was remodeled to 560,000 dwt, the largest crude oil carrier.

Barges

Flatboats, the forerunners of today's barges, moved some of the first U.S. crude oil, but barge traffic did not become an important mode of oil transport until the early 20th century. During World War II ships were diverted to ocean-going duty and barges became an important method of internal petroleum transport. Increased wartime traffic proved their economy, and use of barges continued after the war. In 1980, as a result of increasing shipments of Alaskan crude oil to the Lower 48 States and U.S. Caribbean Territories, waterborne petroleum transport, by way of both ships and barges, began to account for more ton-miles of petroleum transport than pipelines.

Motor Carriers

The first tank trucks began to appear about 1915. Their primary use was as a delivery vehicle for gasoline service stations. World War II firmly established the tank truck's role in local and regional transport. The number of tank trucks continued to grow rapidly in the 1950's and 1960's, largely at the expense of railroads. Since 1976, the ton-mileage carried by trucks has gradually declined.

Railroads

Railroads first began transporting crude oil from the Pennsylvania oil fields in 1862. They were the dominant mode of petroleum transportation until the 1870's when pipelines began to gain the upper hand in long-distance transport. The number of railway tank cars used to transport petroleum peaked around the year 1930, and then dropped off as pipelines continued to expand. During World War II there was a brief renaissance for rail tank car shipments, when the dangers to coastal shipping forced 20,000 idle tank cars into service. After the war, when trucking began making inroads, railway tank car usage again declined.

^{*}Deadweight tonnage is the carrying capacity of a vessel in long tons (2,240 pounds). It includes cargo, fuel, water, stores, crew, etc.

Sources: Association of Oil Pipe Lines, "Shifts in Petroleum Transportation," April 29, 1983; Congressional Research Service, "National Energy Transportation," Volume 1, May 1977; Alex Marks, "Elements of Oil Tanker Transportation," Tulsa: PennWell Publishing Company, 1982.

Pipelines and water carriers also play major roles in the movement of petroleum products from U.S. refineries to consumers. Because of the economies of scale, large-diameter pipelines are employed whenever practical. When the volume of product to be transported does not justify construction of a large-diameter pipeline, water routes often take over much of the traffic. If water transportation is not feasible, smaller diameter pipelines may move the products. Railroad tank cars usually fill a transportation gap in geographic areas not served by pipelines and water carriers. Tanker trucks dominate the final leg of distribution, because of their ability to serve the retail distributor or the ultimate consumer. Yet, as illustrated in Figure 1, they move less than 5 percent of the domestic ton-miles of petroleum products. Tanker trucks distribute gasoline and diesel fuel to retail outlets; they also move heating oil and fuel to farms, residences, and commercial businesses. Only a few major consumers, such as powerplants, airports, or heavy industries, receive petroleum products directly from pipelines, barges or railways.

Historically, refineries were located close to their sources of crude oil. However, as consumption grew, refiners were forced to seek crude oil from increasingly distant sources. Prior to 1978, crude oil transported between domestic oil fields (or ports of entry) and refineries accounted for fewer ton-miles than petroleum products moved from refineries to consumers. The opening of the Trans-Alaska Pipeline System in 1977 allowed the economic transport of large quantities of crude oil from Prudhoe Bay to the port of Valdez for water transport to distant refining centers. As a result, domestic crude oil ton-mileage increased, and, by 1982, crude oil accounted for 62.5 percent of total U.S. petroleum transportation ton-mileage.²

Pipelines

Virtually every barrel of petroleum used in the United States travels by pipeline at some time as it goes through the distribution network—as crude oil piped from ports and wells to refineries, or as refined products piped from refineries to wholesalers and consumers.

Modern pipelines range in size from 2-inch gathering lines to the 56-inch diameter Louisiana Offshore Oil Port (LOOP) pipeline. Sections of steel pipe 30 to 80 feet long are usually welded, coated and wrapped to protect against corrosion, and buried. They may also be laid above ground or underwater.

Crude oil and petroleum products are pumped through pipelines at speeds of approximately 4 to 6 miles per hour. "Batches" of different products are often moved in the same pipeline at the same time. To reduce contamination, product batches on most pipelines are carried in a defined order. This allows a minimum of mixing at the "interface" between the two batches. The system is often monitored by computer from a central control center. Highly viscous oils, such as residual and bunker oils, cannot be moved efficiently in a pipeline. The same is true of greases, waxes, and asphalt.³



The U.S. pipeline system comprises more than 200,000 miles of gathering lines, crude oil trunk lines, and product trunk lines.⁴ The average barrel of petroleum in a pipeline moves more than 600 miles.⁵ Significant pipeline flows of crude oil travel along the central axis of the country from Gulf Coast ports and from Texas, Louisiana, and Oklahoma producing areas to Midwestern refineries. However, the largest concentration of U.S. refining capacity is along the Gulf Coast. For this reason, the most significant product flows also come from the Texas and Louisiana Gulf Coast areas. The Colonial and Plantation pipelines are the major movers of products northeastward from the Texas and Louisiana Gulf Coast areas.⁶

²Association of Oil Pipe Lines, "Shifts in Petroleum Transportation," April 29, 1983.

³Congressional Research Service, *National Energy Transportation*, Volume 1, May 1977; J.N. Hooker, *Oil Pipeline Energy Consumption and Efficiency*, January 1981; Colonial Pipeline Company, *Performance and Trends*, no date.

⁴*Oil & Gas Journal*, November 28, 1983; Energy Information Administration, *Crude-oil and Refined-products Pipeline Mileage in the United States*, January 1, 1977, DOE/EIA-0107.

⁵Calculated from Association of Oil Pipe Lines, "Shifts in Petroleum Transportation," July 29, 1982.

⁶Energy Information Administration, Form EIA-813, "Monthly Crude Oil Report;" Energy Information Administration, *Petroleum Supply Annual*, 1982, DOE/EIA-0340(82)/1, June 1983.

Pipeline companies often do not buy or sell the petroleum products they transport, but only provide transportation service. Until 1980, when the ton-mileage for water transport surpassed pipeline ton-mileage, pipelines transported more crude oil and petroleum products (measured in terms of ton-mileage) than any other domestic transportation mode. Pipelines continue to account for almost half of the total U.S. petroleum transportation ton-mileage.

Tankers

The world tanker fleet transports a significant amount of crude oil to the United States. Much of this oil is transported in supertankers—the most economical mode of petroleum transportation. Significant international shipments of crude oil to the United States come from the Persian Gulf, Mexico, and the United Kingdom. Residual fuel oil, the leading petroleum product imported, by volume, comes primarily from South America and the Caribbean.

Tankers are also active in domestic trade. They bring Alaskan crude oil to West Coast and Gulf Coast refineries, and also transport refined products to the East Coast. Florida and the New England States, in particular, rely on tankers for most of their petroleum products.⁷ Domestically, the largest quantities of crude oil are shipped from Alaska to the West Coast. Motor gasoline shipments from the Gulf Coast to the East Coast constitute the largest domestic product movement.⁸

Despite its size, the tanker is basically a large, strong, metal tank which narrows in the bow and in the stern. Subdividing most tanker hulls are two longitudinal bulkheads and from 5 to 11 transverse bulkheads. These bulkheads reduce the "sloshing" effect of the oil, which could gather force in a free space and threaten the stability of the ship. The bulkheads can separate different grades of crude oil or products.

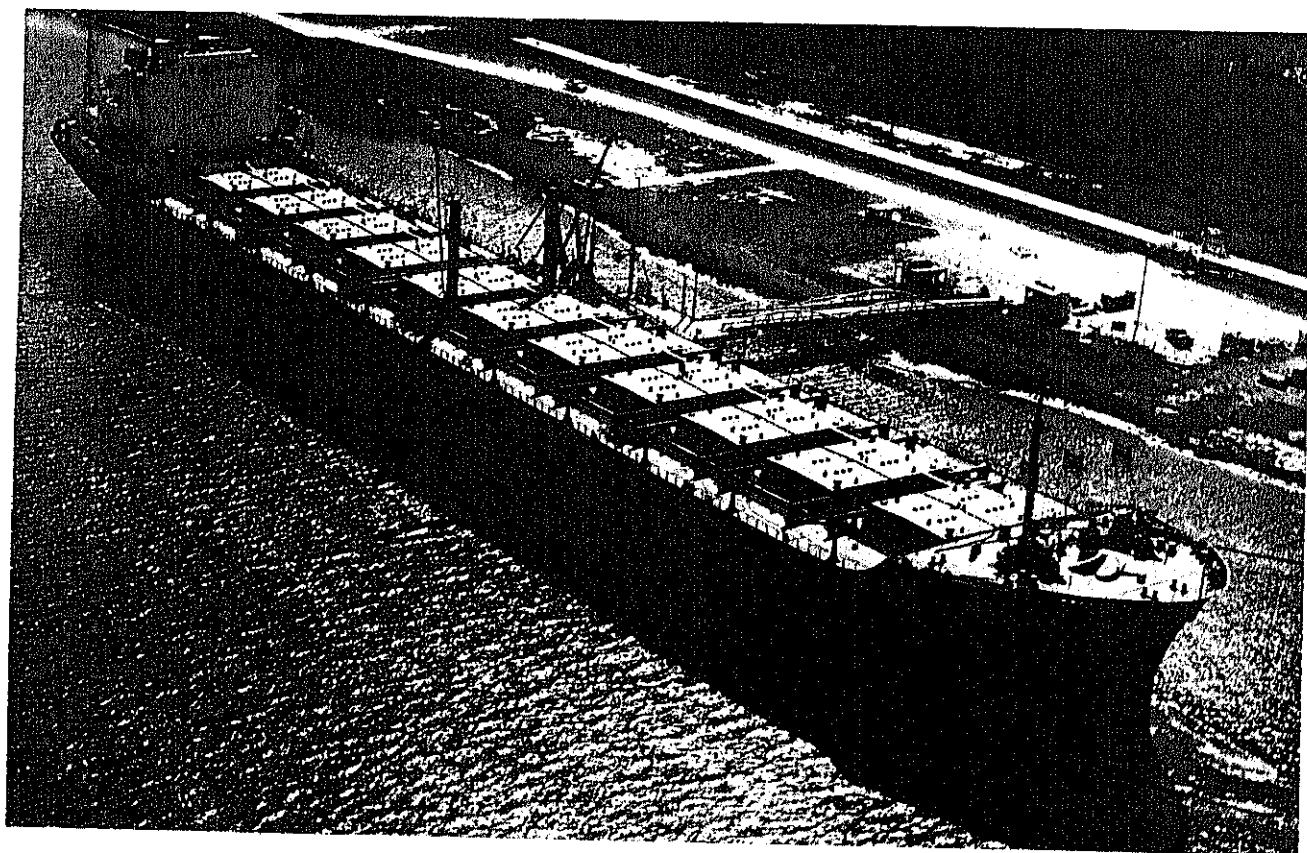
At present, foreign crude oil moved to the United States by tanker travels an average of more than 6,000 miles from its port of origin to the United States.⁹ In domestic commerce, petroleum transported by ship is carried more than 2,500 miles on the average.¹⁰

⁷U.S. Army Corps of Engineers, *Waterborne Commerce of the United States*, Calendar Year 1982.

⁸Energy Information Administration, *Petroleum Supply Annual* 1982 DOE/EIA-0340 (82)/1, June 1983, and Energy Information Administration, *International Energy Annual*, 1982, DOE/EIA-0219(82), September 1983; Energy Information Administration, Form EIA-87, "Refinery Report," 1982 annual compilation.

⁹Congressional Research Service, *National Energy Transportation*, Volume 1, May 1977; calculation from Energy Information Administration, *Petroleum Supply Annual*, 1982, and Defense Mapping Agency, *Distances Between Ports*, Publication 151, 1976.

¹⁰Calculated from Bruce E. Peterson, "The Costs of Transporting Petroleum in the United States," Oak Ridge National Laboratory, September 2, 1983.



Relative to their capacity, tanker construction costs and fuel requirements become more economical as tanker size increases. This has led to the emergence of large supertankers in petroleum transportation. In the United States, however, port depths are a limiting factor in the use of large supertankers. The Louisiana Offshore Oil Port is the only U.S. port able to handle the largest tankers (over 200,000 dwt capacity), and only a few U.S. ports can serve loaded 150,000 dwt tankers. As a result, large oil tankers destined for the United States sometimes transfer part of their cargo to smaller tankers at sea in a lightering operation. With reduced draft, both tankers are able to dock. Another frequently employed option is to transfer oil from large tankers to smaller tankers and terminals at Caribbean ports for reshipment to the United States.¹¹

Barges

Barge transport is another important method of waterborne petroleum movement in the United States. Millions of barrels of crude oil and petroleum products move by barge each year on the Nation's more than 25,000 miles of inland waterways.¹² Much of this traffic is concentrated on the Gulf Intracoastal Waterway, the Houston Ship Channel, the Delaware River, and the Mississippi River.¹³ Water transport, including both ship and barge traffic, accounted for about 51 percent of domestic crude oil and 45 percent of domestic refined product shipments, measured on a ton-mileage basis in 1982 (see Figure 1). Yet, for all petroleum moved by barge the average distance traveled is only about 50 miles per barrel.¹⁴

The three basic types of barges used for petroleum transport are distinguished by their physical characteristics. Single-skin tank barges have bow and stern compartments separated from the midship compartments by transverse bulkheads. Double-skin barges have inner shells or "skins" forming cylindrical tanks within their outer shells. Ocean-going barges differ from these types mainly in size.

Up to 40 barges lashed together can be moved by towboats or tugboats at speeds of up to 6 miles per hour. On protected inland waterways, such as the Mississippi River, towboats are preferred, because they can push larger tows in narrower, shallower channels. On intracoastal waterways, tugboats are preferred, because they can pull tows more easily under wind and wave conditions found in coastal areas. Two weather-related disadvantages affect barge transportation: parts of the system are closed each winter because the waterways freeze, and severe droughts may reduce the flows of water in some waterways.¹⁵

Motor Carriers

Of all petroleum transportation modes, consumers may be most familiar with tanker trucks, even though they move only 2 percent of all ton-miles for crude oil and refined petroleum products combined. Their flexibility allows them to reach more places than any other transportation mode.

Most petroleum shipments by truck involve petroleum products being transported from refineries and pipeline terminals to bulk storage facilities and consumers. Little crude oil is trucked, although trucks are occasionally used to move crude oil from isolated wells to gathering pipelines. Both tractor-trailer trucks and straight, rigid-body tank trucks are used for petroleum transport. They are often compartmentalized into two or three tanks, which can hold different types of products. These tank trucks travel at about the same speeds as other highway traffic and carry their loads an average of about 50 miles.¹⁶ Tank truck capacity is small, compared to that of other transportation modes. A tank truck serving home consumers generally transports 1,750 to 3,200 gallons. However, some tractor-trailer trucks have capacities of up to 9,200 gallons.¹⁷

Railroads

Railroads generally carry refined products rather than crude oil, but they have the smallest market share of any mode for both crude oil and products. On the average, railroads carry refined petroleum products distances of more than 500 miles.¹⁸

Highly specialized railroad tank cars have evolved since the 1860's, when railroads transported crude oil in barrels from the Pennsylvania oil fields and the first railroad tank cars (vertical wooden tanks mounted on flatcars) appeared. Modern tank cars are designed to carry specific products; e.g., cars designed to transport lighter products, such as gasoline or liquefied petroleum gases, differ from and are not readily interchangeable with those designed to transport heavier products, such as residual fuel oil and asphalt.

While railroads were the dominant mode of petroleum transport until the 1870's, since that time they have lost market share first to pipelines, and later to trucking. Not since World War II have they played a major role in U.S. petroleum transportation. Today, railroad tank cars are used primarily to fill a transportation gap in geographic areas not served by pipelines and barges.¹⁹

¹¹Bruce E. Peterson, "The Costs of Transporting Petroleum in the United States," Oak Ridge National Laboratory, September 2, 1983; Alex Marks, *Elements of Oil-Tanker Transportation*, Tulsa: PennWell Publishing Company, 1982.

¹²U.S. Army Corps of Engineers, *Navigation: The Role of the Corps*, October 1983.

¹³U.S. Army Corps of Engineers, *Waterborne Commerce of the United States*, Calendar Year 1982.

¹⁴Calculated from Bruce E. Peterson, "The Costs of Transporting Petroleum in the United States," Oak Ridge National Laboratory, September 2, 1983.

¹⁵Congressional Research Service, *National Energy Transportation*, Volume 1, May 1977.

¹⁶Calculated from Association of Oil Pipe Lines, "Shifts in Petroleum Transportation," July 29, 1982.

¹⁷Congressional Research Service, *National Energy Transportation*, Volume 1, May 1977; Edward Hillsman, "Expenditures for Moving Petroleum by Truck in the United States," Oak Ridge National Laboratory, 1983; National Oil Jobbers Council, private communication, January 12, 1984.

¹⁸Federal Railroad Administration, *Carload Waybill Statistics*, 1982, unpublished.

¹⁹Congressional Research Service, *National Energy Transportation*, Volume 1, May 1977.

Costs

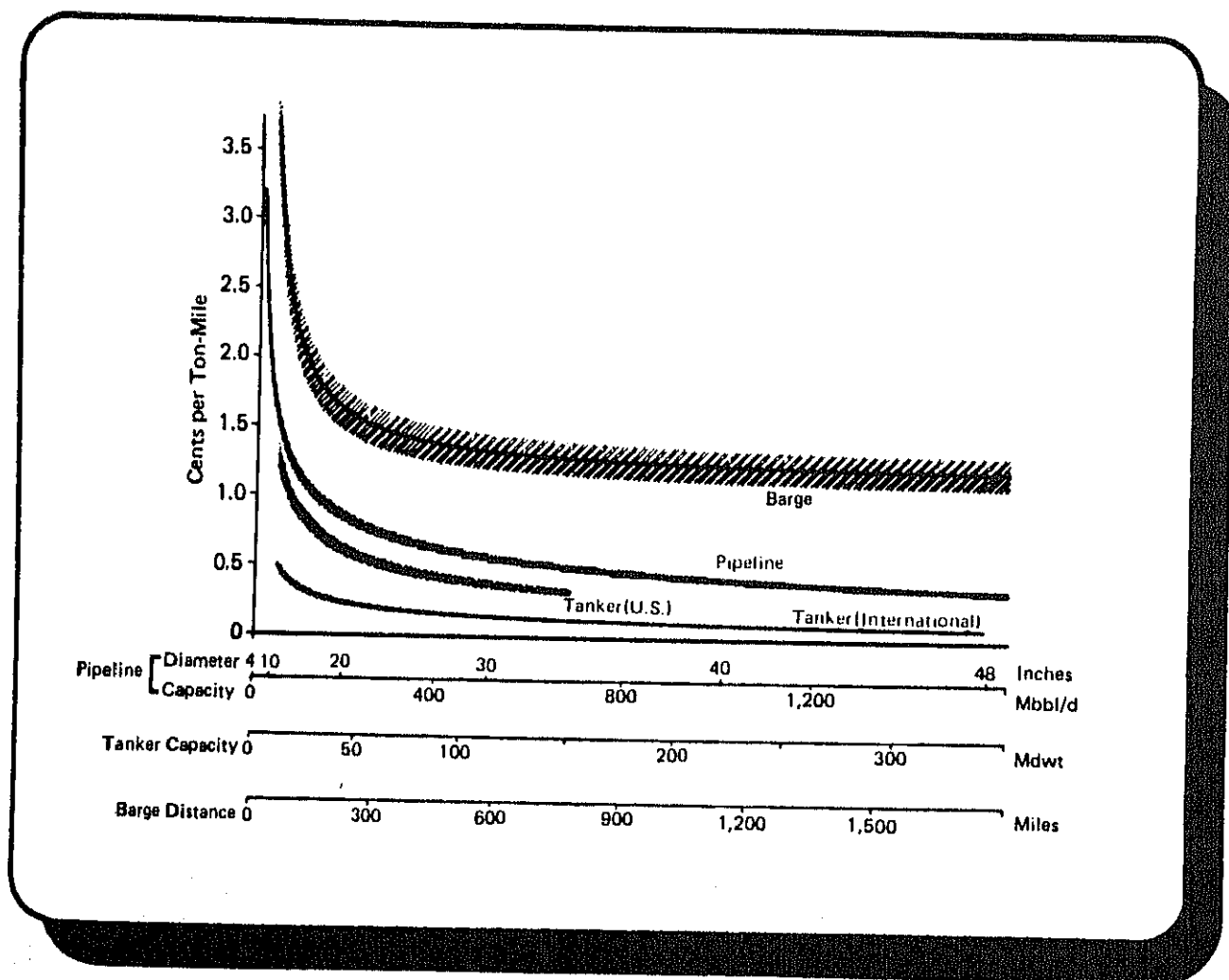
International tanker is the least expensive transportation mode. Costs are progressively higher for domestic tanker, pipelines in the Lower 48 States, and barges through most of their ranges, although there are some instances where the economies of scale cause a shift in the relative cost positions of Lower 48 pipelines, barges, and domestic tankers (see Figure 2). On average, rail transport is about three times as costly as barge transport, approximately 4.5 to 5.0 cents per ton-mile in 1983 dollars. Alaskan crude oil pipeline transport averages 6.2 cents per ton-mile. Truck transport averages 30 to 35 cents per ton-mile.

To a large extent, costs are a function of economies of scale. Scale economies are so pervasive that the history of petroleum transportation has been one of ever-

increasing distances, yet ever-declining costs. For the dominant transportation modes, Figure 2 shows that as capacity or distance increases for a given mode, operating costs also grow, but at a lower rate. This provides an incentive to collect flows into a few large volume corridors to reduce unit costs of transport. For example, pipelines are costly to build. The ratio of capital investment to operating costs is higher than for any other transportation mode. Furthermore, this investment is fixed in location: once a pipeline is built, it cannot readily be moved. Even so, pipelines enjoy high economies of scale, because, as the diameter increases, capacity increases more rapidly than construction costs. This provides an incentive to build the largest line feasible.²⁰

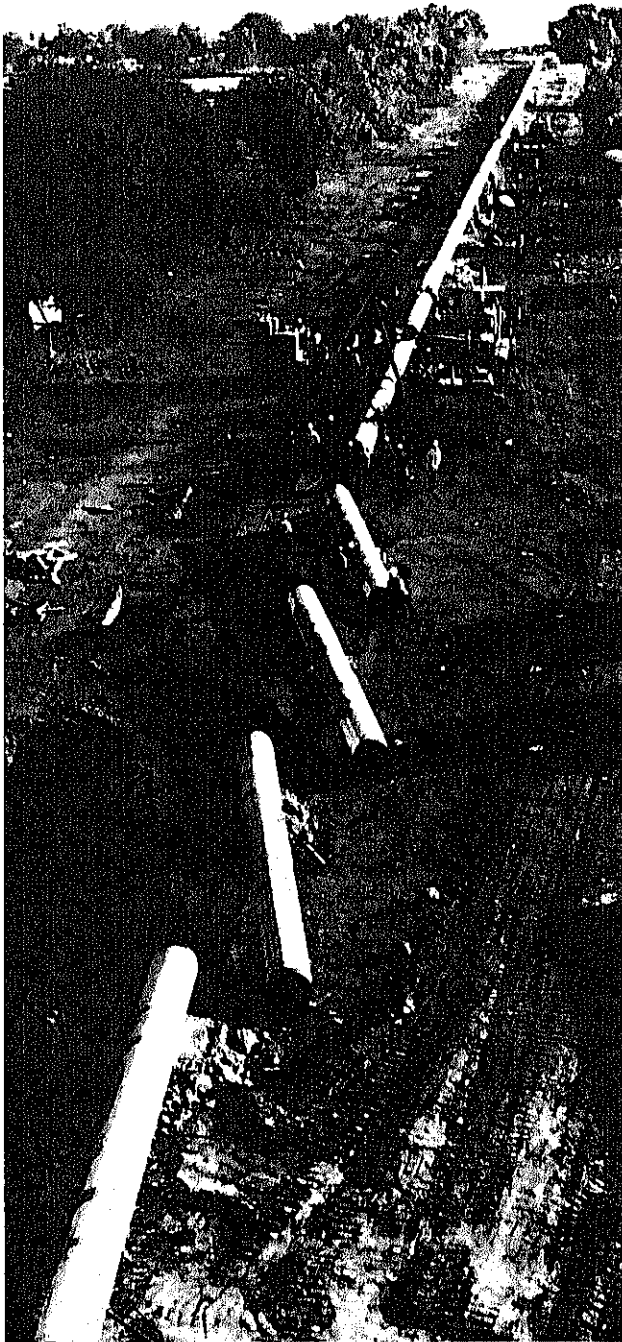
²⁰Bruce E. Peterson, "The Costs of Transporting Petroleum in the United States," Oak Ridge National Laboratory, September 2, 1983.

Figure 2. Unit Petroleum Transportation Costs for Pipelines, Tankers, and Barges



Source: Bruce E. Peterson, "The Costs of Transporting Petroleum in the United States," Oak Ridge National Laboratory, September 2, 1983.

Notes: Pipeline costs exclude Trans-Alaska Pipeline. Estimates are accurate to between one and two significant figures. Costs are converted to 1983 dollars. Horizontal scale varies according to mode.



While capacity is the key factor contributing to economies of scale in pipeline and tanker transport, distance also has economic implications for some modes. Barge transport becomes more economical per ton-mile as distance increases. However, because the maximum capacity of a single tow is about 80,000 barrels, the economic benefits to be gained by increasing the size of shipments are limited.

For some modes, as economies of scale increase, flexibility decreases; so truck transport, while generally the most flexible, is also the most expensive mode. It has

few economies of scale, because few tractor-trailers can carry more than 35 tons of products, and these are too large for home delivery.²¹ At the other end of the spectrum, an ocean-going tanker may carry 150,000 tons of petroleum. Few of the larger tankers dock in the United States, however, while tank trucks are a familiar sight nationwide.

Current Trends

Patterns of refined petroleum product distribution have remained relatively stable, since the 1978 peak in U.S. petroleum demand. Meanwhile, two major shifts have occurred in the shipment of crude oil:

- International shipping has declined as U.S. imports of crude oil fell 45 percent between 1978 and 1982, as imports from Mexico and the United Kingdom displaced a portion of those from the Persian Gulf.
- The opening of the Trans-Alaska Pipeline and increased North Slope production have led to dramatic increases in water transport from Alaska.

International Shipping Decline

From 1978 to 1982 U.S. crude oil refinery inputs declined more than 19 percent (see Figure 3), as petroleum demand declined. Domestic crude oil production was largely unaffected; however, total crude oil imports fell 45 percent,²² severely affecting international shipping.

From 1978 to 1982 U.S. refinery receipts of waterborne foreign crude oil were cut by more than half, or almost 2.4 million barrels per day. Imports of crude oil into all Petroleum Administration for Defense Districts fell from 1978 to 1982, but the sharpest regional decline, 69 percent, occurred on the West Coast, because of increased Alaskan production. Likewise, refinery receipts of foreign crude oil by water were most affected on the West Coast.²³

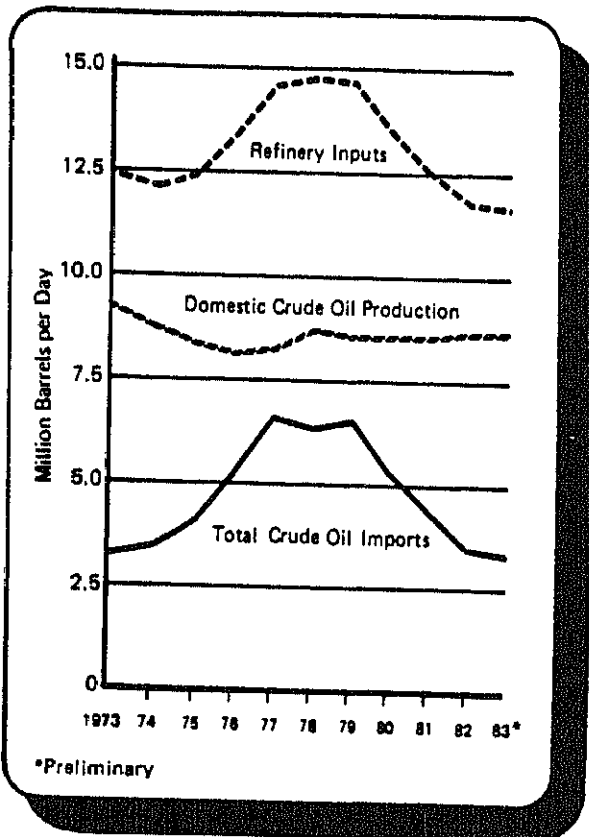
As petroleum imports declined, sources shifted closer to the United States. Imports from the Persian Gulf and North Africa generally declined, while imports from Mexico and the United Kingdom increased. Thus, as imports fell, the average distance traveled by a barrel of imported petroleum and the total international ton-miles for imported petroleum declined. Imports fell 45 percent; average distance dropped 26 percent; and ton-miles declined 60 percent. In 1978 the average distance

²¹National Oil Jobbers Council, private communication, January 12, 1984.

²²Energy Information Administration, *Petroleum Supply Annual*, 1982, and Energy Information Administration, *Annual Petroleum Statement*, 1978, DOE/EIA-0108/78, November 1979.

²³Energy Information Administration, *Petroleum Supply Annual*, 1982, and Energy Information Administration, *Annual Petroleum Statement*, 1978, DOE/EIA-0108/78, November 1979.

Figure 3. Crude Oil Supply and Disposition



Source: Energy Information Administration, "Petroleum Supply Monthly."

traveled by a barrel of imported crude oil from country of origin to U.S. consuming region was about 8,400 miles; by 1982, it had dropped to about 6,200 miles.²⁴

Weak U.S. demand for crude oil imports contributed to the decline of the world tanker fleet. Until the 1973 oil embargo, the world fleet was growing at a rapid rate; it continued to grow until 1977 on the strength of past orders. Since then, the world fleet has declined, as tankers have been scrapped and not replaced.²⁵ A significant part of the world fleet is idle, and many owners are charging rates which barely cover operating costs.²⁶

Alaskan Shipping Growth

Since the completion of the Trans-Alaska Pipeline System in 1977, Alaskan crude oil production has risen tenfold, from about 170,000 barrels per day in 1976 to 1.7 million barrels per day in 1983. All of this new production has come from the North Slope.²⁷ This increased Alaskan production has had a dramatic effect on domestic crude oil transportation. From 1977 to 1978 water shipments of Alaskan crude oil more than doubled the average distance a barrel of crude oil

traveled by water in the United States, from 744 to 1,790 miles.²⁸ Figure 4 shows that in 1980, for the first time, water carriers logged more ton-miles of crude oil transport than pipelines.

²⁴Calculated from Energy Information Administration, *Petroleum Supply Annual*, 1982, and Defense Mapping Agency, *Distances Between Ports*, Publication 151, 1976.

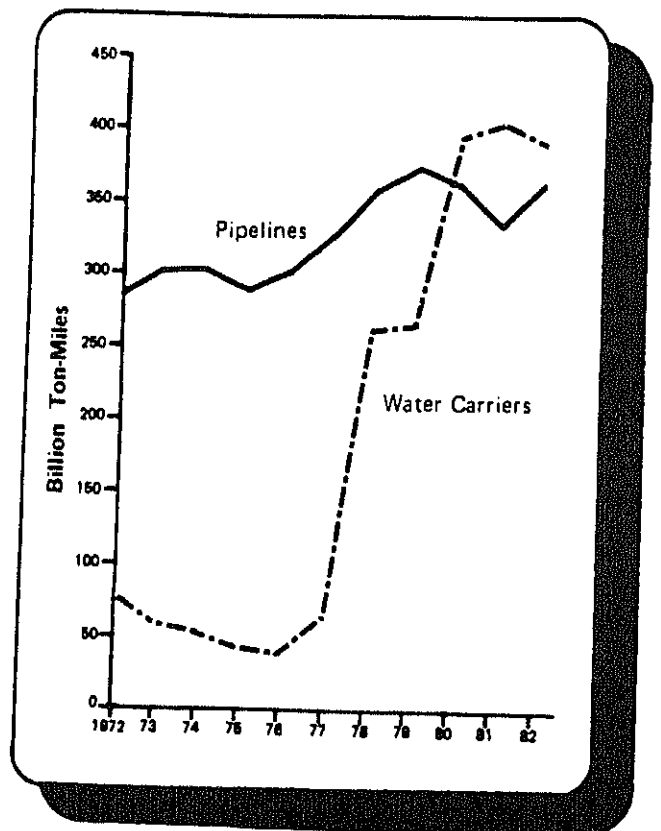
²⁵Maritime Administration, *Merchant Fleets of the World*, various years.

²⁶Bruce E. Peterson, "The Costs of Transporting Petroleum in the United States," Oak Ridge National Laboratory, September 2, 1983.

²⁷Energy Information Administration, *Petroleum Supply Monthly* and Energy Information Administration, *Annual Petroleum Statement*, 1978, DOE/EIA-0108/78, November 1979.

²⁸Calculated from Association of Oil Pipe Lines, "Shifts in Petroleum Transportation," July 29, 1982.

Figure 4. Crude Oil Ton-Mileage Trends



Sources: Association of Oil Pipe Lines, "Shifts in Petroleum Transportation," April 29, 1983, 1972-1981; 1982 estimates based on "Oil & Gas Journal," November 28, 1983, November 22, 1982; Bureau of the Census, "Statistical Abstract of the United States," 1982-83; Association of Oil Pipe Lines, "Shifts in Petroleum Transportation," April 29, 1983; Energy Information Administration, "Petroleum Supply Annual," 1981-1982; Energy Information Administration, Energy Data Reports, "Crude Petroleum, Petroleum Products, and Natural Gas Liquids (Final Summary)," 1976-1980; Bureau of Mines, Mineral Industry Surveys, "Crude Petroleum, Petroleum Products, and Natural Gas Liquids, (Final Summary)," 1972-1975.

More than 40 U.S. flag tankers with a combined capacity of about 5 million dwt are employed in moving Alaskan crude oil.²⁹ More than half of the Alaskan crude is destined for the West Coast, but shipments to Gulf Coast refineries in 1982 averaged 383,000 barrels per day.³⁰ U.S. law effectively bans Alaskan oil exports and requires the use of U.S. vessels in domestic trade.

Conclusion

Major petroleum transportation modes and corridors have evolved over time. Because large pipelines and large refineries are stationary and expensive, they are built to operate for long time periods, usually 20 years or more. Domestic water routes are also fixed in location. Thus, these factors in petroleum transportation are not expected to change significantly during the next few years. Methods and technologies have also evolved over the past century, exploiting the economies of scale and fine tuning transportation systems. In the next few years, modifications can be expected to continue improving the transportation system, although no major changes are anticipated and present patterns of petroleum transportation are expected to remain stable.

From their low in 1983 of 3.3 million barrels per day, U.S. crude oil imports are expected to rise to 4-8 million barrels per day by the end of the decade.³¹ Increases in petroleum imports can be expected to lengthen crude

oil supply lines, although the average distance traveled by a barrel of imported crude oil is unlikely to reach prior levels, unless most of the increase comes from the Persian Gulf area. Most of this journey will take place by international tanker, easing pressure on the international shipping industry, and having little impact on consumer prices.

North Slope production is projected to increase slightly in the 1980's.³² Thus, shipping from Alaska is expected to remain at least at present levels for the remainder of the decade. Ton-mileage for water transport can also be expected to remain at least as high as pipeline ton-mileage for the rest of the 1980's.

Tanker truck operations, even though they are expected to remain as the highest cost mode, are expected to maintain their share of the petroleum transportation market, because of the flexibility they provide to the system. Rail transport is expected to continue in a minor role.

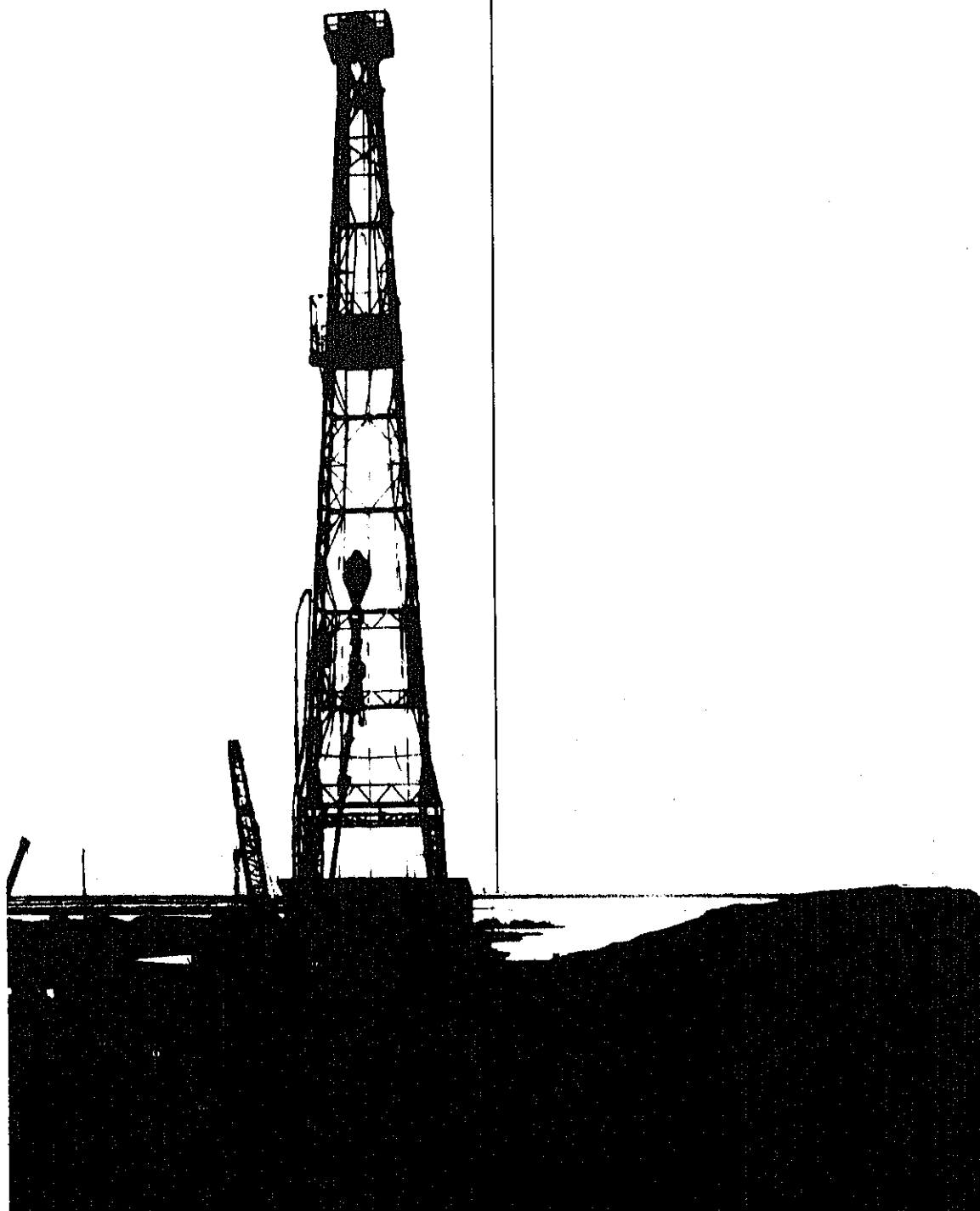
²⁹Maritime Administration, personal communication, December 23, 1983.

³⁰Energy Information Administration, Form EIA-87, "Refinery Report," 1982 annual compilation.

³¹Energy Information Administration, *Annual Energy Outlook*, 1982, DOE/EIA-0383(82), April 1983.

³²Energy Information Administration, *Annual Energy Outlook*, 1982, DOE/EIA-0383(82), April 1983.

Summary Statistics



Crude Oil¹ and Petroleum Products Overview

		Field Production			Stock Withdrawal ²			Ending Stocks ³
		Total Domestic ⁴	Crude Oil	Natural Gas Plant Production	Crude Oil ⁵	Petroleum Products	Petroleum Products Supplied	Crude Oil ⁵ and Petroleum Products
Thousand Barrels per Day								Million Barrels
1973	AVERAGE	10,975	9,208	1,738	11	-146	17,308	1,008
1974	AVERAGE	10,498	8,774	1,688	-62	-117	16,653	1,074
1975	AVERAGE	10,045	8,375	1,633	⁸ -17	⁸ -145	16,322	1,133
1976	AVERAGE	9,774	8,132	1,603	-39	96	17,461	1,112
1977	AVERAGE	9,913	8,245	1,618	-170	-378	18,431	1,312
1978	AVERAGE	10,328	8,707	1,567	-78	172	18,847	1,278
1979	AVERAGE	10,179	8,552	1,584	-148	-25	18,513	1,341
1980	AVERAGE	10,214	8,597	1,573	-98	-42	17,056	⁸ 1,392
1981	AVERAGE	10,230	8,572	1,609	⁸ -290	⁸ 130	16,058	1,484
1982	January	10,128	8,509	1,578	-401	1,298	16,124	1,456
	February	10,312	8,702	1,563	-242	1,230	16,001	1,428
	March	10,284	8,667	1,572	121	1,047	15,560	1,392
	April	10,188	8,591	1,542	-37	1,583	16,046	1,346
	May	10,244	8,683	1,518	29	-66	14,847	1,347
	June	10,212	8,646	1,511	40	-489	14,998	1,360
	July	10,229	8,658	1,513	-147	-926	14,821	1,393
	August	10,215	8,634	1,524	-440	-44	14,839	1,408
	September	10,279	8,701	1,518	263	-447	15,022	1,414
	October	10,299	8,701	1,530	-548	-47	14,859	1,432
	November	10,359	8,697	1,609	-398	-361	15,009	1,455
	December	10,276	8,598	1,628	128	688	15,487	⁸ 1,430
	AVERAGE	10,252	8,649	1,550	-136	283	15,296	
1983	January	10,356	8,634	1,668	-567	⁸ 865	14,765	1,453
	February	10,298	8,660	1,585	-382	1,128	14,772	1,432
	March	10,259	8,677	1,544	56	1,765	15,484	1,375
	April	10,229	8,686	1,502	-438	431	14,779	1,376
	May	10,231	8,682	1,483	68	-759	14,250	1,397
	June	10,262	8,676	1,514	-163	-242	15,281	1,409
	July	10,237	8,647	1,536	118	-922	14,913	1,434
	August	10,257	8,653	1,561	-781	-289	15,366	1,467
	September	10,323	8,666	1,598	-191	-634	15,396	1,492
	October	10,317	8,654	1,604	-180	-456	14,947	1,512
	November	10,310	8,624	1,636	182	-128	15,533	1,510
	December*	10,188	8,612	1,533	R -306	R 2,150	R 16,691	R 1,453
	AVERAGE	10,272	8,656	1,564	R -215	R 239	R 15,184	
1984	January**	NA	8,659	NA	1	1,665	17,094	1,422

¹ Includes lease condensate.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ Stocks are totals as of end of period.

⁴ Includes crude oil, natural gas plant production, other hydrocarbons, and alcohol.

⁵ Includes stocks located in the Strategic Petroleum Reserve.

⁶ Includes crude oil for storage in the Strategic Petroleum Reserve.

⁷ Net Imports = Imports minus Exports.

⁸ In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

Crude Oil¹ and Petroleum Products Overview (continued)

		Imports			Exports			
		Total	Crude Oil ⁶	Petroleum Products	Total	Crude Oil	Petroleum Products	
Thousand Barrels per Day								
1973	AVERAGE	6,256	3,244	3,012	231	2	229	6,025
1974	AVERAGE	6,112	3,477	2,635	221	3	218	5,892
1975	AVERAGE	6,056	4,105	1,951	209	6	204	5,846
1976	AVERAGE	7,313	5,287	2,026	223	8	215	7,090
1977	AVERAGE	8,807	6,615	2,193	243	50	193	8,565
1978	AVERAGE	8,363	6,356	2,008	362	158	204	8,002
1979	AVERAGE	8,456	6,519	1,937	472	235	237	7,984
1980	AVERAGE	6,909	5,263	1,646	544	287	258	6,365
1981	AVERAGE	5,996	4,396	1,599	595	228	367	5,401
1982	January	5,332	3,693	1,639	829	238	591	4,503
	February	4,807	2,990	1,817	804	304	499	4,003
	March	4,484	2,874	1,610	882	321	561	3,602
	April	4,378	2,849	1,529	786	174	611	3,593
	May	4,811	3,309	1,503	803	262	542	4,008
	June	5,327	3,836	1,491	703	94	609	4,624
	July	5,890	4,248	1,642	741	229	512	5,149
	August	5,244	3,851	1,392	858	304	554	4,386
	September	5,414	3,636	1,778	791	184	606	4,624
	October	5,306	3,670	1,636	932	270	662	4,374
	November	5,744	3,862	1,882	786	262	524	4,958
	December	4,606	3,000	1,605	860	193	667	3,746
	AVERAGE	5,113	3,488	1,625	815	236	579	4,298
1983	January	4,372	2,938	1,434	973	117	856	3,399
	February	3,691	2,268	1,423	865	262	603	2,825
	March	3,629	2,232	1,398	801	174	627	2,829
	April	4,744	3,154	1,590	809	88	721	3,935
	May	4,898	3,234	1,664	848	280	568	4,049
	June	5,218	3,502	1,716	774	144	630	4,443
	July	5,690	3,888	1,822	571	145	426	5,119
	August	6,036	4,174	1,863	663	172	491	5,373
	September	6,088	4,221	1,867	684	177	507	5,403
	October	5,256	3,446	1,810	576	140	436	4,680
	November	5,168	3,312	1,856	679	186	494	4,489
	December*	R 4,986	R 3,214	R 1,772	639	95	544	4,348
	AVERAGE	R 4,988	R 3,303	R 1,686	739	164	575	4,249
1984	January**	5,146	3,181	1,964	NA	NA	NA	NA

Footnotes continued.

* See Explanatory Note 9.1.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available.

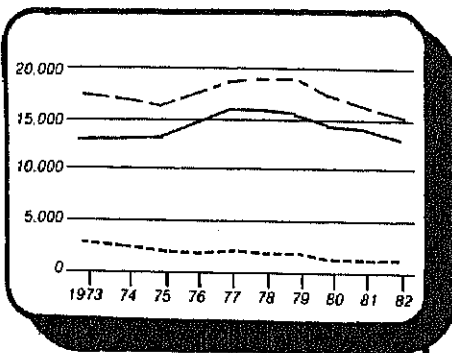
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

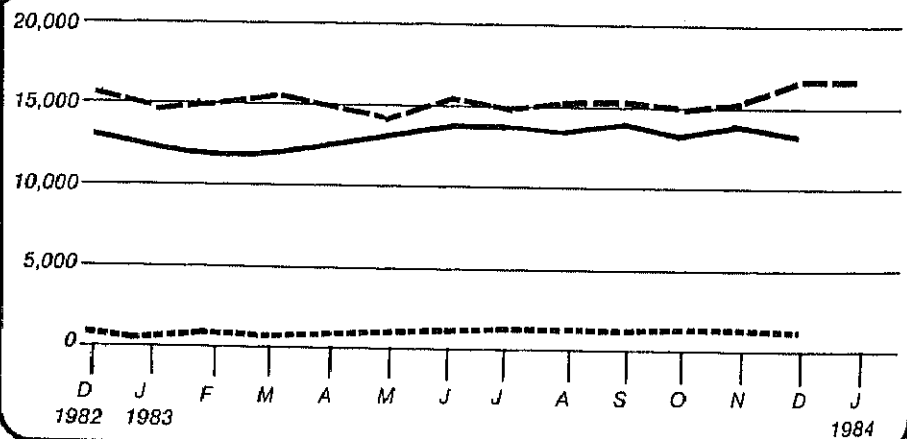
Petroleum Overview

(Thousand Barrels Per Day)



Annual

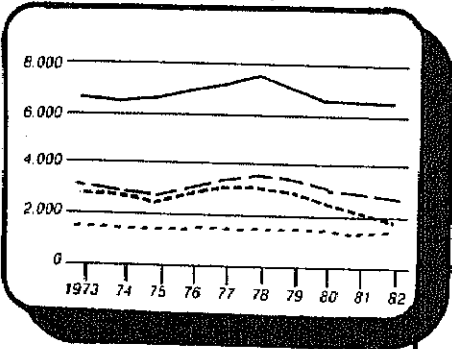
Legend
 - - - Petroleum Product Supplied
 — Refinery Production
 . . . Net Petroleum Product Imports



Monthly

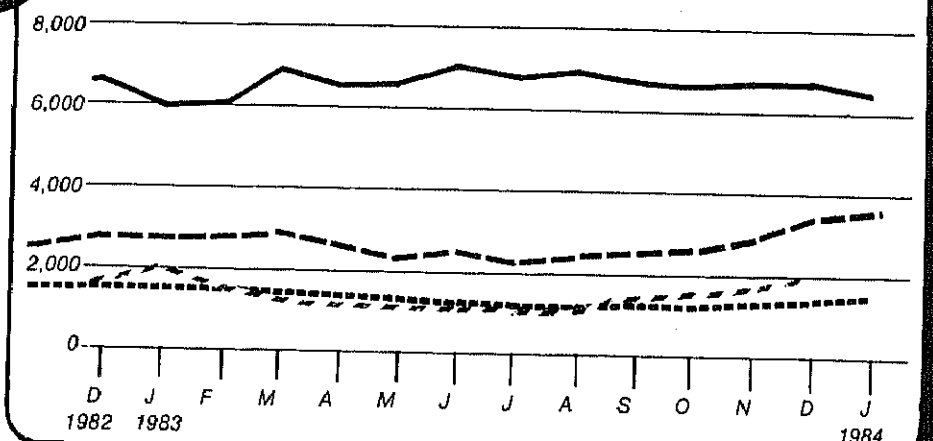
Petroleum Products Supplied

(Thousand Barrels Per Day)



Annual

Legend
 — Motor Gasoline
 - - - Distillate Fuel Oil
 . . . Residual Fuel Oil
 - . . LPG¹

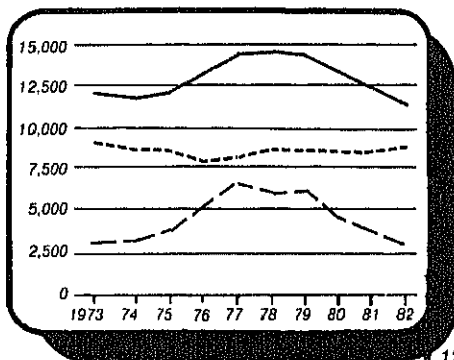


Monthly

¹ Liquefied Petroleum Gases

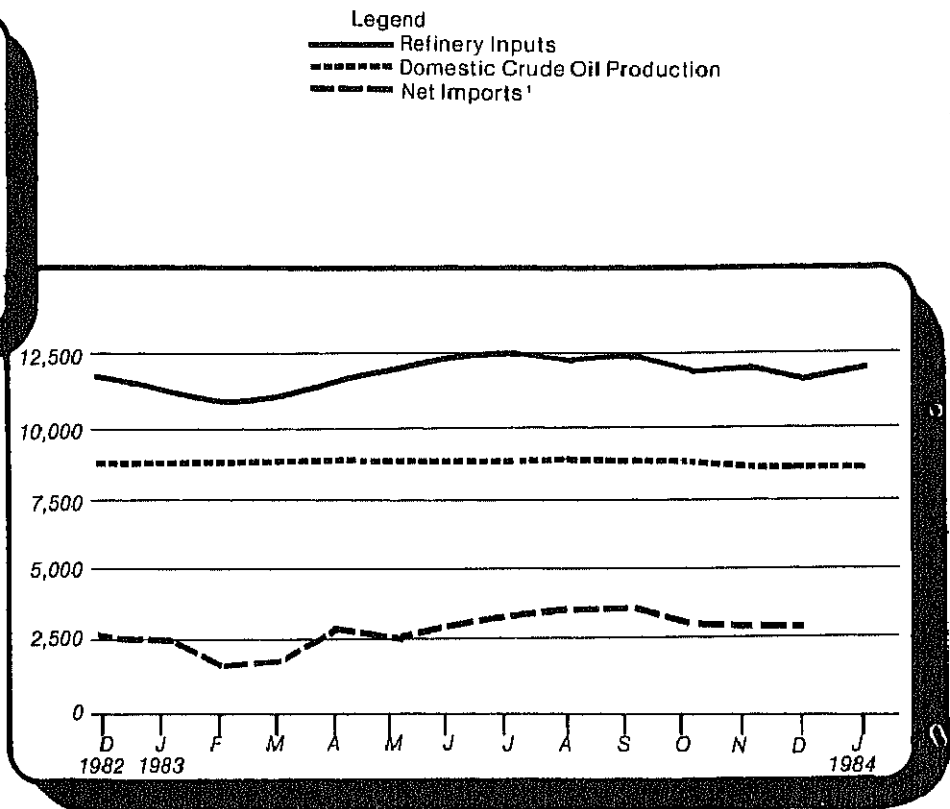
Crude Oil Supply and Disposition

(Thousand Barrels Per Day)



Annual

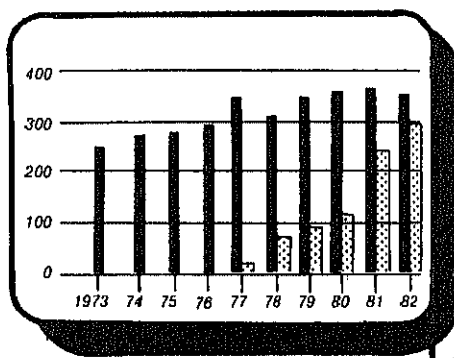
¹ Excludes SPR Imports



Monthly

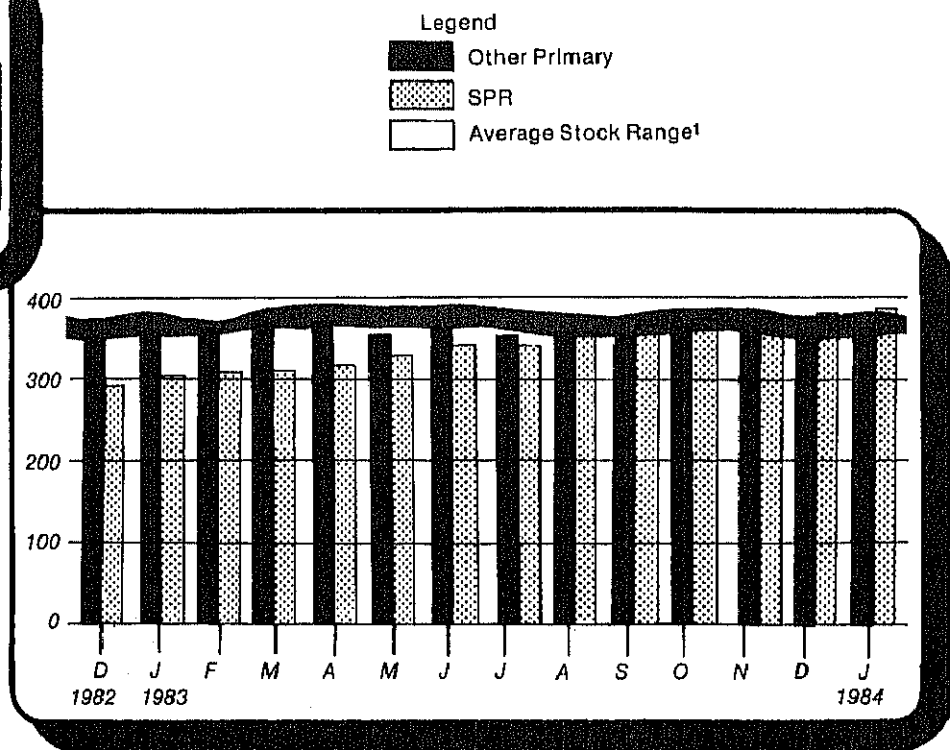
Crude Oil Ending Stocks

(Million Barrels)



Annual

¹ Level and width of Average Stock Ranges for crude oil is based on 3 years of data, July 80-July 83. See Explanatory Note 6.



Monthly

Crude Oil¹ Supply and Disposition

		Supply							
		Field Production		Imports			Stock Withdrawal ³		Unac- counted for Crude Oil
		Total Domestic	Alaskan	Total	SPR ⁴	Other	SPR ⁴	Other	
1973	AVERAGE	9,208	198	3,244		3,244		11	3
1974	AVERAGE	8,774	193	3,477		3,477		-62	-25
1975	AVERAGE	8,375	191	4,105		4,105		-17	17
1976	AVERAGE	8,132	173	5,287		5,287		-39	77
1977	AVERAGE	8,245	464	6,615	21	6,594	-20	-150	-6
1978	AVERAGE	8,707	1,229	6,356	162	6,195	-163	84	-57
1979	AVERAGE	8,552	1,401	6,519	67	6,452	-67	-81	-11
1980	AVERAGE	8,597	1,617	5,263	44	5,219	-45	-52	34
1981	AVERAGE	8,572	1,609	4,396	256	4,141	-336	⁶ 46	83
1982	January	8,509	1,705	3,693	170	3,523	-159	-242	101
	February	8,702	1,707	2,990	159	2,830	-213	-29	156
	March	8,667	1,696	2,874	185	2,689	-235	357	2
	April	8,591	1,691	2,849	190	2,659	-233	196	231
	May	8,683	1,707	3,309	204	3,105	-176	205	111
	June	8,646	1,665	3,836	105	3,732	-105	144	133
	July	8,658	1,710	4,248	97	4,150	-97	-50	-20
	August	8,634	1,697	3,851	208	3,643	-208	-232	189
	September	8,701	1,705	3,636	139	3,497	-143	406	-210
	October	8,701	1,706	3,670	216	3,454	-216	-332	249
	November	8,697	1,676	3,862	180	3,683	-179	-219	-124
	December	8,598	1,682	3,000	124	2,877	-125	252	35
	AVERAGE	8,649	1,696	3,488	165	3,323	-174	38	71
1983	January	8,634	1,698	2,938	219	2,720	-219	-348	238
	February	8,660	1,725	2,268	197	2,071	-197	-185	423
	March	8,677	1,726	2,232	201	2,031	-184	240	134
	April	8,686	1,710	3,154	205	2,949	-197	-241	191
	May	8,682	1,710	3,234	289	2,945	-293	362	148
	June	8,676	1,710	3,502	190	3,312	-188	25	480
	July	8,647	1,705	3,868	274	3,594	-264	382	-74
	August	8,653	1,712	4,174	350	3,823	-358	-423	333
	September	8,666	1,722	4,221	309	3,912	-307	116	-6
	October	8,654	1,731	3,446	202	3,244	-201	21	69
	November	8,624	1,713	3,312	171	3,141	-135	317	137
	December*	8,612	1,713	R 3,214	R 193	R 3,021	R -252	R -55	-141
	AVERAGE	8,656	1,715	R 3,303	R 234	R 3,069	R -234	R 19	159
1984	January**	8,659	1,741	3,181	163	3,018	-184	185	NA

Crude Oil¹ Supply and Disposition (continued)

		Supply	Disposition				Ending Stocks ²		
		Crude Used Directly ⁵	Crude Losses	Refinery Inputs	Exports	Products Supplied ⁵	Total Crude Oil	SPR ⁴	Other Primary
		Thousand Barrels per Day					Million Barrels		
1973	AVERAGE	-19	13	12,431	2	NA	242		242
1974	AVERAGE	-15	13	12,133	3	NA	265		265
1975	AVERAGE	-17	13	12,442	6	NA	271		271
1976	AVERAGE	-18	15	13,416	8	NA	285		285
1977	AVERAGE	-14	16	14,602	50	NA	348	7	340
1978	AVERAGE	-14	16	14,739	158	NA	376	67	309
1979	AVERAGE	-13	16	14,648	235	NA	430	91	339
1980	AVERAGE	-13	15	13,481	287	NA	⁶ 466	108	⁶ 358
1981	AVERAGE	-58	5	12,470	228	NA	594	230	363
1982	January	-63	3	11,599	238	NA	606	235	371
	February	-64	2	11,236	304	NA	613	241	372
	March	-63	5	11,276	321	NA	609	249	361
	April	-65	3	11,392	174	NA	610	256	355
	May	-62	3	11,806	262	NA	609	261	348
	June	-60	7	12,494	94	NA	608	264	344
	July	-60	3	12,446	229	NA	613	267	346
	August	-57	2	11,871	304	NA	626	274	353
	September	-56	4	12,146	184	NA	619	278	341
	October	-51	2	11,749	270	NA	636	285	351
	November	-51	1	11,724	262	NA	648	290	358
	December	-53	1	11,514	193	NA	644	294	350
	AVERAGE	-59	3	11,774	236	NA			
1983	January	NA	2	11,070	117	54	661	301	361
	February	NA	3	10,635	262	69	672	306	366
	March	NA	2	10,854	174	70	670	312	359
	April	NA	2	11,436	88	68	684	318	366
	May	NA	1	11,789	280	63	681	327	355
	June	NA	1	12,287	144	64	686	332	354
	July	NA	2	12,347	145	65	683	341	342
	August	NA	1	12,141	172	64	707	352	355
	September	NA	1	12,445	177	66	713	361	352
	October	NA	1	11,784	140	63	718	367	351
	November	NA	2	12,003	186	64	713	371	341
	December*	NA	1	R 11,217	95	67	R 722	R 379	R 343
	AVERAGE	NA	1	R 11,672	164	65			
1984	January**	NA	NA	11,635	NA	NA	728	385	344

Footnotes continued.

* See Explanatory Note 9.2.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

Crude Oil and Petroleum Product Imports

		Imports from OPEC Sources ¹									
		Algeria	Libya	Saudi Arabia	United Arab Emirates	Indonesia	Iran	Nigeria	Venezuela	Other OPEC ²	Total Arab OPEC ³
		Thousand Barrels per Day									
1973	AVERAGE	136	164	486	71	213	223	459	1,135	106	2,993
1974	AVERAGE	190	4	461	74	300	469	713	979	88	3,280
1975	AVERAGE	282	232	715	117	390	280	762	702	122	3,801
1976	AVERAGE	432	453	1,230	254	539	298	1,025	700	134	5,066
1977	AVERAGE	559	723	1,380	335	541	535	1,143	690	287	6,193
1978	AVERAGE	649	654	1,144	385	573	555	919	645	228	5,751
1979	AVERAGE	636	658	1,356	281	420	304	1,080	690	212	5,837
1980	AVERAGE	488	554	1,261	172	348	9	857	481	130	4,300
1981	AVERAGE	311	319	1,129	81	366	0	620	406	90	3,323
1982	January	254	161	877	111	289	0	663	376	128	2,859
	February	139	92	693	89	244	0	584	355	102	2,297
	March	91	37	555	155	200	0	522	399	91	2,051
	April	85	0	511	122	215	0	427	426	85	1,871
	May	179	0	601	116	236	0	222	422	54	1,830
	June	115	0	593	94	215	72	537	361	110	2,096
	July	159	0	660	108	327	69	910	356	95	2,685
	August	181	0	489	133	271	27	574	299	133	2,107
	September	179	0	432	57	191	21	477	518	69	1,943
	October	249	7	494	61	242	108	313	504	106	2,084
	November	247	14	489	47	283	34	479	528	115	2,235
	December	155	0	237	12	265	88	462	389	73	1,690
	AVERAGE	170	26	552	92	248	35	514	412	97	2,146
1983	January	204	0	282	47	255	43	186	324	43	1,384
	February	104	0	214	9	217	0	92	371	28	1,035
	March	63	0	103	0	138	0	121	425	173	1,023
	April	228	0	180	(*)	210	0	186	508	125	1,438
	May	284	0	122	12	324	37	352	444	69	1,645
	June	300	0	175	40	502	38	402	335	146	1,938
	July	282	0	182	58	464	112	525	431	187	2,240
	August	370	0	426	45	416	213	464	477	230	2,641
	September	413	0	587	21	516	86	324	472	208	2,627
	October	261	0	638	16	368	12	307	337	169	2,108
	November	165	0	545	56	318	21	214	435	135	1,891
	December	141	0	569	45	291	9	329	408	163	1,957
	AVERAGE	235	0	336	29	335	48	294	414	140	1,832

¹ Excludes petroleum imported into the United States indirectly from OPEC countries, primarily from Caribbean and West European areas, as refined petroleum products which were refined from crude oil produced in OPEC countries.

² Includes Ecuador, Gabon, Iraq, Kuwait, and Qatar.

³ Includes Algeria, Libya, Saudi Arabia, United Arab Emirates, Iraq, Kuwait, and Qatar. Footnotes continued on following page.

Crude Oil and Petroleum Product Imports (continued)

		Imports from Non-OPEC Sources ⁴										
		Baha- mas	Canada	Mexico	Nether- lands Antilles	Trinidad and Tobago	United Kingdom	Puerto Rico	Virgin Islands	Other Non OPEC	Total Non OPEC	Total Imports
		Thousand Barrels per Day										
1973	AVERAGE	174	1,325	16	585	255	15	99	329	465	3,263	6,256
1974	AVERAGE	164	1,070	8	511	251	8	90	391	340	2,832	6,112
1975	AVERAGE	152	846	71	332	242	14	90	406	300	2,454	6,056
1976	AVERAGE	118	599	87	275	274	31	88	422	353	2,247	7,313
1977	AVERAGE	171	517	179	211	289	126	105	466	550	2,614	8,807
1978	AVERAGE	160	467	318	229	253	180	94	429	484	2,613	8,363
1979	AVERAGE	147	538	439	231	190	202	92	431	548	2,819	8,456
1980	AVERAGE	78	455	533	225	176	176	88	388	491	2,609	6,909
1981	AVERAGE	74	447	522	197	133	375	62	327	534	2,672	5,996
1982	January	58	513	425	179	106	346	62	334	452	2,474	5,332
	February	67	537	476	221	120	181	38	362	508	2,510	4,807
	March	43	437	503	189	118	294	62	307	480	2,433	4,484
	April	82	360	476	184	166	247	36	266	690	2,507	4,378
	May	77	419	766	152	95	516	47	302	607	2,981	4,811
	June	32	481	797	148	129	557	58	322	708	3,231	5,327
	July	64	536	783	158	118	433	38	376	698	3,204	6,890
	August	80	443	853	145	106	520	24	317	650	3,137	5,244
	September	92	493	897	195	89	631	51	278	746	3,472	5,414
	October	45	459	682	148	109	666	52	262	801	3,222	5,306
	November	51	553	860	212	90	623	81	334	706	3,508	5,744
	December	88	561	689	174	102	438	48	336	480	2,916	4,606
	AVERAGE	65	482	685	175	112	456	50	316	627	2,968	5,113
1983	January	68	536	849	218	73	315	40	299	588	2,988	4,372
	February	92	592	722	179	81	193	50	192	554	2,655	3,691
	March	86	488	760	187	78	240	43	162	563	2,606	3,629
	April	167	452	981	216	85	421	20	183	781	3,306	4,744
	May	135	501	944	153	108	483	42	235	651	3,252	4,898
	June	137	576	831	181	120	424	48	252	712	3,281	5,218
	July	69	633	849	191	103	369	37	364	836	3,450	5,890
	August	142	540	891	194	90	461	40	313	725	3,395	6,036
	September	137	523	832	251	82	472	33	308	822	3,461	6,086
	October	164	539	771	172	108	414	48	370	565	3,149	5,266
	November	143	542	717	144	110	334	55	440	793	3,278	5,168
	December	119	592	718	153	113	429	22	271	613	3,030	4,986
	AVERAGE	122	542	822	187	96	381	40	283	684	3,156	4,986

Footnotes continued.

⁴ Includes petroleum imported into the United States indirectly from OPEC countries, primarily from Caribbean and West European areas, as refined petroleum products which were refined from crude oil produced in OPEC countries.

(*) = Less than 500 barrels per day.

Note: Beginning in October 1977, Strategic Petroleum Reserve imports are included.

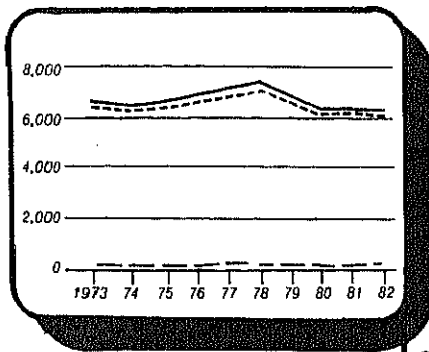
Total may not equal sum of components due to independent rounding.

Geographic coverage: The 50 United States and the District of Columbia.

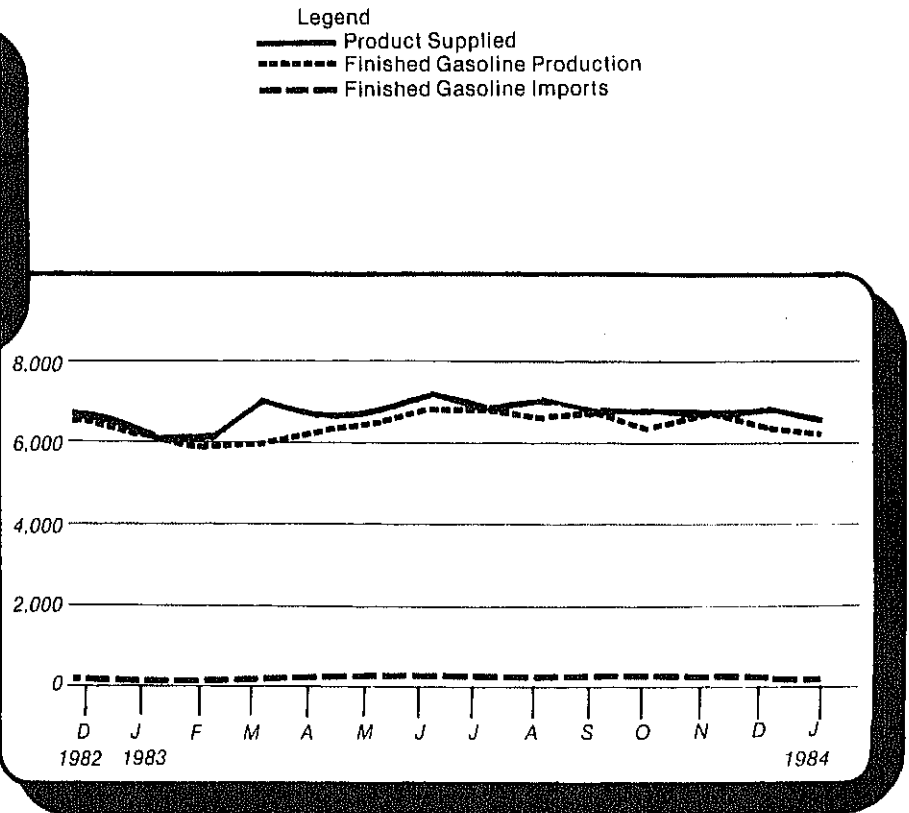
Source: See the last page of this section.

Motor Gasoline Supply and Disposition

(Thousand Barrels Per Day)



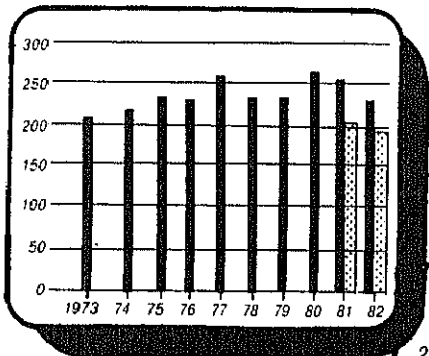
Annual



Monthly

Motor Gasoline Ending Stocks

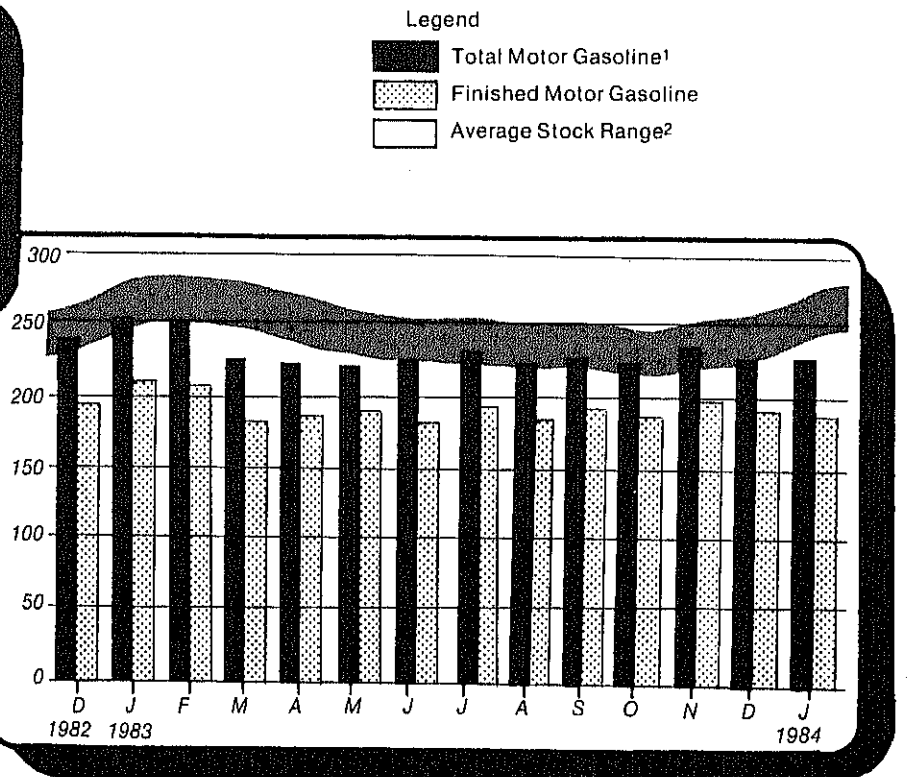
(Million Barrels)



Annual

¹ Includes finished motor gasoline blending components

² Level and width of Average Stock Range for total motor gasoline based on 3 years of data. July 80-June 83. See Explanatory Note 6.



Monthly

Finished Motor Gasoline Supply and Disposition

		Supply			Disposition				Ending Stocks ¹	
		Total Production	Imports ²	Stock With- drawal ^{2 3}	Exports	Products Supplied			Total Motor Gasoline ⁵	Finished Motor Gasoline
						Total	Unleaded ⁴	Unleaded		
Thousand Barrels per Day								Percent of Total	Million Barrels	
1973	AVERAGE	6,535	134	9	4	6,674	NA	NA	209	
1974	AVERAGE	6,360	204	-24	2	6,537	NA	NA	⁶ 218	
1975	AVERAGE	6,520	184	⁶ -28	2	6,675	NA	NA	235	
1976	AVERAGE	6,841	131	10	3	6,978	NA	NA	231	
1977	AVERAGE	7,033	217	-72	2	7,177	1,976	27.5	258	
1978	AVERAGE	7,169	190	54	1	7,412	2,521	34.0	238	
1979	AVERAGE	6,852	181	2	(⁶)	7,034	2,798	39.8	237	
1980	AVERAGE	6,506	140	-66	1	6,579	3,067	46.6	⁶ 261	
1981	AVERAGE ⁷	6,405	157	⁶ 28	2	6,588	3,264	49.5	253	
1982	January	6,167	128	-316	18	5,961	3,067	51.5	261	213
	February	5,899	133	172	8	6,196	3,210	51.8	257	208
	March	5,994	183	334	44	6,466	3,358	51.9	247	198
	April	6,095	185	650	33	6,897	3,495	50.7	221	179
	May	6,319	182	177	23	6,655	3,415	51.3	214	173
	June	6,754	230	-134	14	6,835	3,565	52.2	219	177
	July	6,768	225	-178	24	6,790	3,577	52.7	226	183
	August	6,419	291	-81	16	6,614	3,526	53.3	227	185
	September	6,527	223	-198	22	6,531	3,404	52.1	234	191
	October	6,262	185	-42	15	6,391	3,351	52.4	234	192
	November	6,273	211	101	11	6,574	3,451	52.5	230	189
	December	6,542	178	-165	7	6,549	3,485	53.2	⁶ 235	⁶ 194
	AVERAGE	6,338	197	25	20	6,539	3,409	52.1		
1983	January	6,020	148	⁶ -186	(⁶)	5,981	3,352	56.0	251	208
	February	5,848	142	32	(⁶)	6,022	3,257	54.1	251	207
	March	5,897	205	765	23	6,843	3,620	52.9	224	184
	April	6,202	273	27	1	6,501	3,505	53.9	221	183
	May	6,386	284	-128	1	6,540	3,547	54.2	225	187
	June	6,646	265	118	22	7,008	3,796	54.2	223	183
	July	6,704	297	-210	18	6,773	3,752	55.4	231	190
	August	6,539	260	159	13	6,946	3,836	55.2	226	185
	September	6,582	285	-160	14	6,693	3,671	54.8	230	190
	October	6,188	335	60	2	6,581	3,698	56.2	228	188
	November	6,636	269	-274	2	6,629	3,714	56.0	236	196
	December*	R 6,314	R 217	R 340	25	R 6,846	3,967	57.9	R 222	R 185
	AVERAGE	6,332	R 249	R 47	10	R 6,617	3,646	55.1		
1984	January**	6,129	188	171	NA	6,486	NA	NA	222	184

¹ Stocks are totals as of end of period.

² Beginning in 1981, excludes blending components.

³ A negative number indicates an increase in stocks and a positive number indicates a decrease.

⁴ Includes gasohol.

⁵ Includes motor gasoline blending components.

⁶ In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

⁷ Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

* See Explanatory Note 9.3.

** Italics denote estimates based upon preliminary data. See explanatory Note 8.

R = Revised data. NA = Not available. (s) = Less than 500 barrels per day.

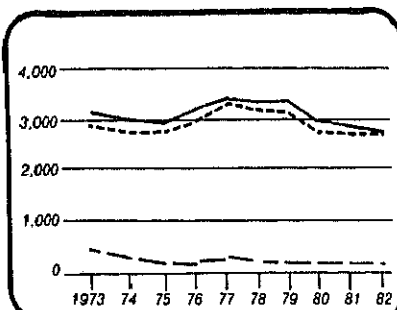
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

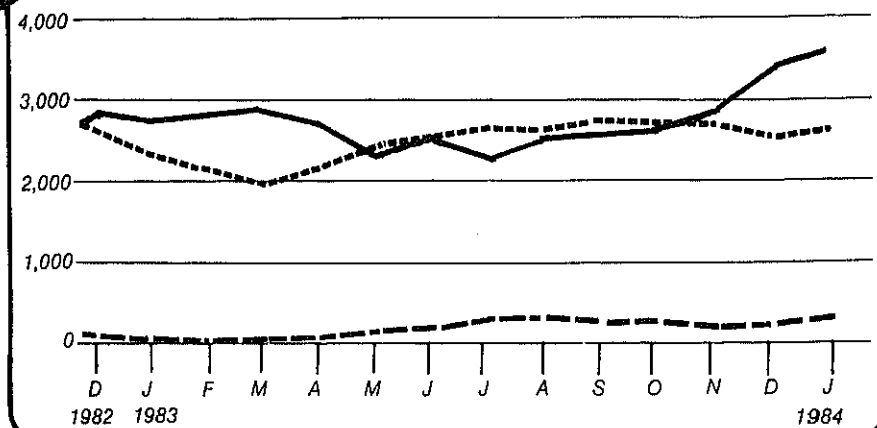
Distillate Fuel Oil Supply and Disposition

(Thousand Barrels Per Day)



Annual

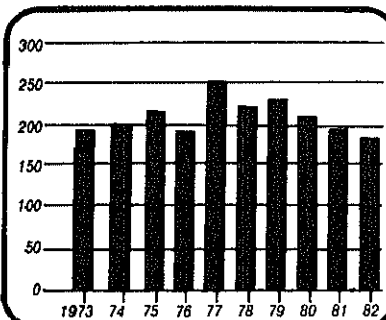
Legend
 — Product Supplied
 - - - Total Production
 . . . Imports



Monthly

Distillate Fuel Oil Ending Stocks

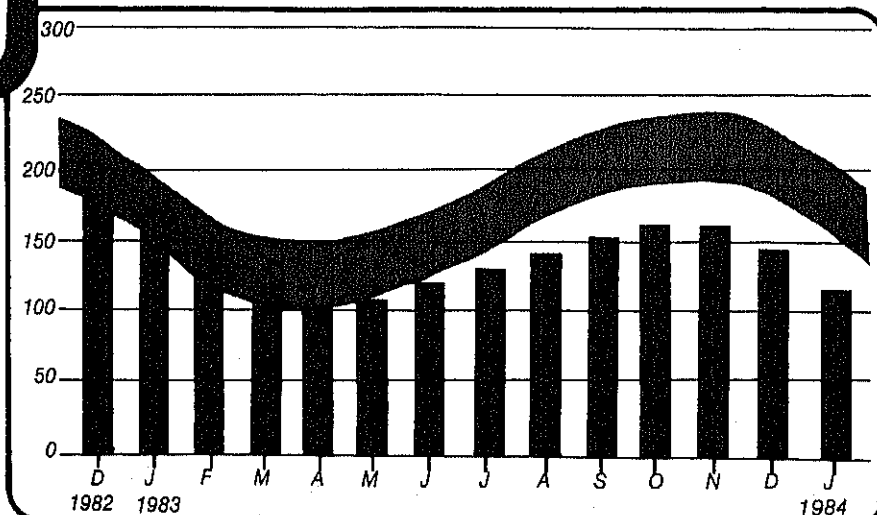
(Million Barrels)



Annual

Legend
 □ Average Stock Range ¹

¹ Level and width of Average Stock Range for distillate fuel oil is based on 3 years of data, July 80-July 83. See Explanatory Note 6.



Monthly

Distillate Fuel Oil Supply and Disposition

	Supply				Disposition		Ending Stocks ¹
	Total Production	Imports	Stock Withdrawal ²	Crude Used Directly ³	Exports	Products Supplied ³	
	Thousand Barrels per Day						Million Barrels
1973 AVERAGE	2,822	392	-115	2	9	3,092	196
1974 AVERAGE	2,669	289	-9	2	2	2,948	⁴ 200
1975 AVERAGE	2,654	155	⁴ 40	2	1	2,851	209
1976 AVERAGE	2,924	146	62	1	1	3,133	188
1977 AVERAGE	3,278	250	-176	1	1	3,352	250
1978 AVERAGE	3,167	173	93	1	3	3,432	216
1979 AVERAGE	3,153	193	-34	1	3	3,311	229
1980 AVERAGE	2,662	142	64	1	3	2,866	⁴ 205
1981 AVERAGE⁵	2,613	173	⁴ 38	10	5	2,829	192
1982 January	2,591	97	876	10	90	3,484	164
February	2,427	132	605	11	90	3,086	147
March	2,288	48	682	10	84	2,945	126
April	2,358	69	612	13	64	2,978	108
May	2,618	74	-183	10	75	2,444	114
June	2,729	102	-335	10	55	2,452	124
July	2,734	125	-789	11	24	2,058	148
August	2,507	80	-339	10	40	2,218	159
September	2,657	61	-85	12	139	2,507	161
October	2,838	91	-289	8	66	2,581	170
November	2,860	145	-514	8	24	2,475	186
December	2,655	109	225	10	143	2,855	⁴ 179
AVERAGE	2,606	93	35	10	74	2,671	
1983 January	2,314	58	⁴ 561	NA	173	2,760	168
February	2,136	58	742	NA	105	2,832	147
March	1,991	42	926	NA	59	2,900	119
April	2,169	73	518	NA	47	2,713	103
May	2,444	141	-193	NA	50	2,341	109
June	2,545	175	-154	NA	40	2,526	114
July	2,600	259	-556	NA	55	2,248	131
August	2,612	302	-403	NA	43	2,467	144
September	2,725	253	-374	NA	37	2,588	155
October	2,682	255	-275	NA	55	2,606	163
November	2,679	189	65	NA	64	2,879	161
December*	R 2,524	R 212	R 675	NA	54	R 3,358	R 140
AVERAGE	R 2,454	R 169	R 124	NA	64	R 2,682	
1984 January**	2,645	285	819	NA	NA	3,694	117

¹ Stocks are totals as of end of period.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ Beginning in January 1984, product supplied for distillate fuel oil does not include crude oil used directly. See Explanatory Note 4.

⁴ In January 1975, 1981, and 1984, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

⁵ Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

* See Explanatory Note 9.4.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available. (s) = Less than 500 barrels per day.

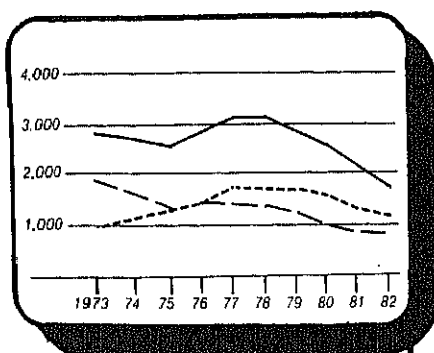
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

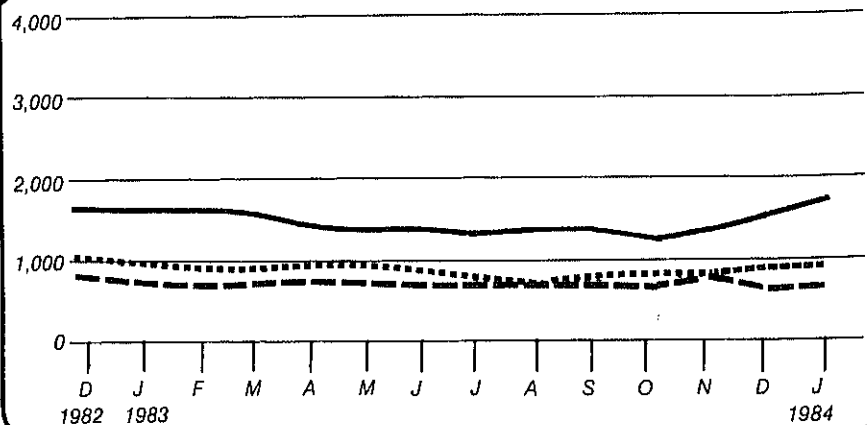
Residual Fuel Oil Supply and Disposition

(Thousand Barrels Per Day)



Annual

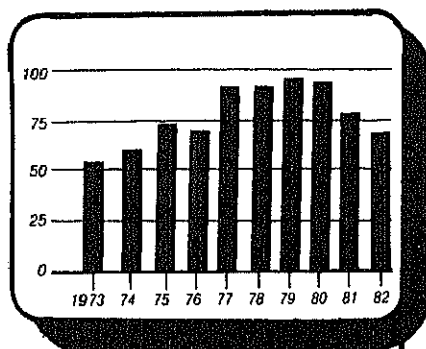
Legend
 — Product Supplied
 - - - Total Production
 - . - Imports



Monthly

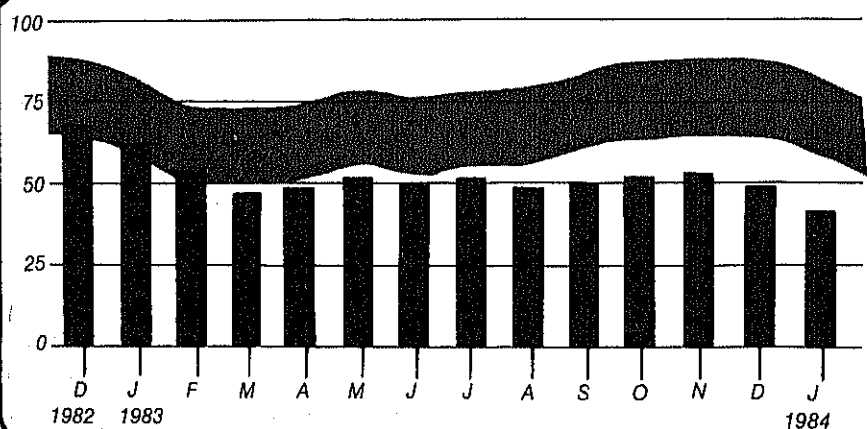
Residual Fuel Oil Ending Stocks

(Million Barrels)



¹ Level and width of Average Stock Range for residual fuel oil based on 3 years of data, July 80-June 83. See Explanatory Note 6.

Legend
 □ Average Stock Range ¹



Monthly

Residual Fuel Oil Supply and Disposition

		Supply				Disposition		Ending Stocks ¹
		Total Production	Imports	Stock Withdrawal ²	Crude Used Directly ³	Exports	Products Supplied ³	
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	971	1,853	5	17	23	2,822	53
1974	AVERAGE	1,070	1,587	-17	13	14	2,639	⁴ 60
1975	AVERAGE	1,235	1,223	⁴ 2	15	15	2,462	74
1976	AVERAGE	1,377	1,413	5	17	12	2,801	72
1977	AVERAGE	1,754	1,359	-48	13	6	3,071	90
1978	AVERAGE	1,667	1,355	-1	13	13	3,023	90
1979	AVERAGE	1,687	1,151	-15	12	9	2,826	96
1980	AVERAGE	1,580	939	10	12	33	2,508	⁴ 92
1981	AVERAGE ⁵	1,321	800	⁴ 37	48	118	2,088	78
1982	January	1,235	831	301	53	235	2,185	69
	February	1,186	956	363	53	213	2,344	58
	March	1,123	912	12	53	197	1,903	58
	April	1,166	788	150	52	234	1,923	54
	May	1,128	742	-172	52	191	1,560	59
	June	1,074	652	-57	50	217	1,501	61
	July	1,028	657	56	49	239	1,550	59
	August	965	551	203	47	235	1,531	53
	September	1,008	872	-306	44	148	1,470	62
	October	955	783	-57	43	234	1,490	64
	November	989	837	-94	43	182	1,591	66
	December	989	747	6	43	186	1,598	⁴ 66
	AVERAGE	1,070	776	32	48	209	1,718	
1983	January	935	691	⁴ 243	NA	294	1,574	61
	February	857	632	270	NA	191	1,568	53
	March	833	686	220	NA	169	1,569	46
	April	942	743	-10	NA	310	1,364	47
	May	930	709	-139	NA	190	1,310	51
	June	832	676	28	NA	219	1,317	50
	July	771	682	-58	NA	90	1,306	52
	August	706	705	115	NA	165	1,362	48
	September	815	690	-47	NA	134	1,324	50
	October	799	634	-56	NA	153	1,224	51
	November	848	777	-101	NA	167	1,358	54
	December*	R 893	R 646	R 173	NA	141	R 1,570	R 49
	AVERAGE	846	R 689	R 52	NA	185	R 1,403	
1984	January**	966	782	196	NA	NA	1,786	41

¹ Stocks are totals as of end of period.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ Beginning in January 1983, product supplied for residual fuel oil does not include crude oil used directly. See Explanatory Note 4.

⁴ In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

⁵ Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

* See Explanatory Note 9.4.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available. (*) = Less than 500 barrels per day.

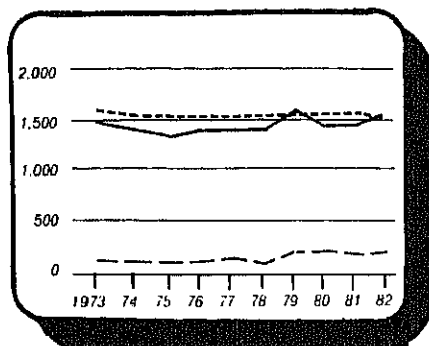
Note: Geographic coverage is the 50 United States and the District of Columbia.

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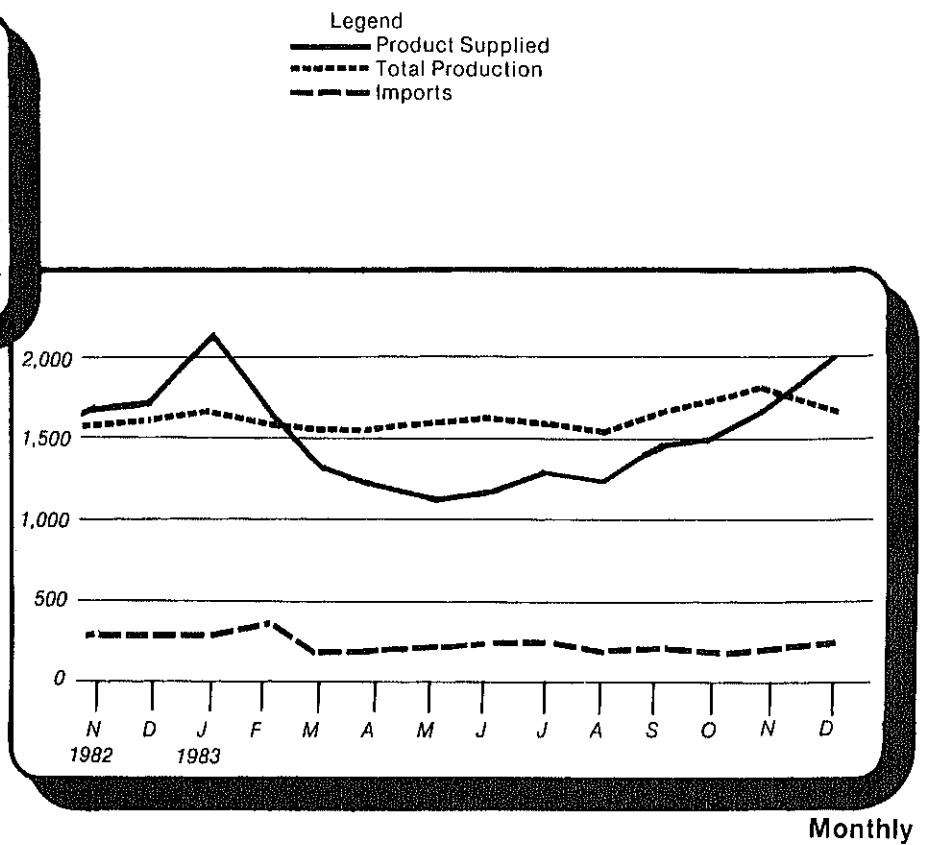
Source: See the last page of this section.

Liquefied Petroleum Gases Supply and Disposition

(Thousand Barrels Per Day)



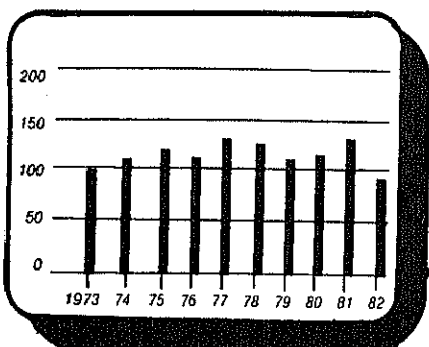
Annual



Monthly

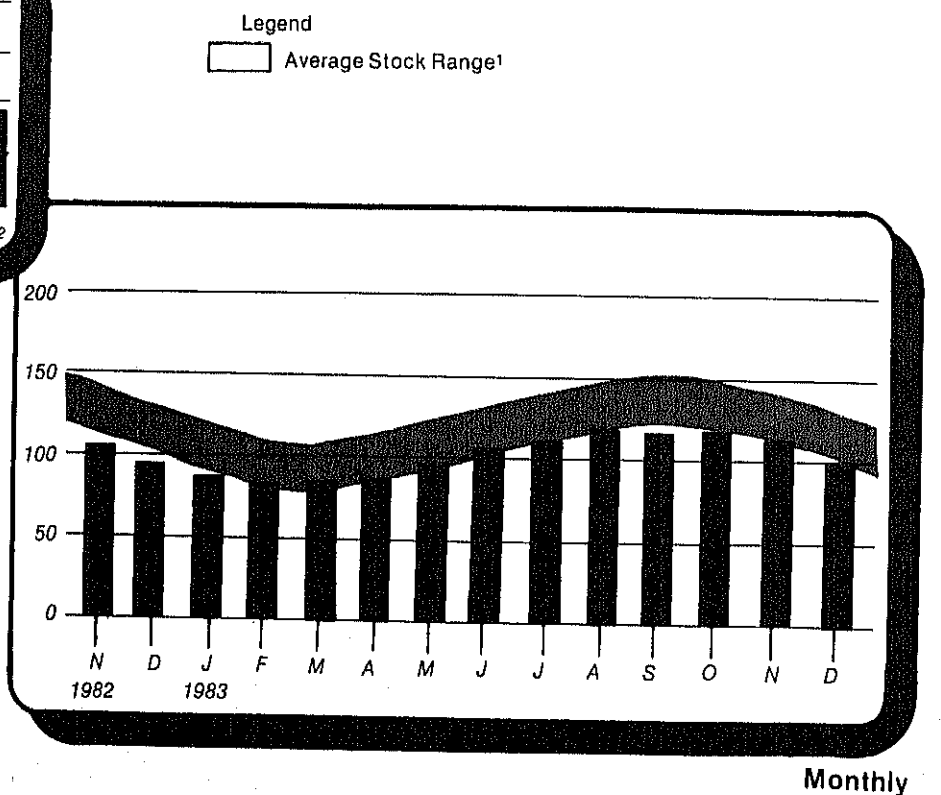
Liquefied Petroleum Gases Ending Stocks

(Million Barrels)



Annual

¹ Level and width of Average Stock range for liquefied petroleum gases based on 3 years of data, July 80-June 83. See Explanatory Note 6.



Monthly

Liquefied Petroleum Gases Supply and Disposition

		Supply			Disposition			Ending Stocks ¹
		Total Production	Imports	Stock Withdrawal ²	Refinery Inputs	Exports	Products Supplied	
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	1,600	132	-35	220	27	1,449	99
1974	AVERAGE	1,565	123	-38	220	25	1,406	³ 113
1975	AVERAGE	1,527	112	³ -35	246	26	1,333	125
1976	AVERAGE	1,535	130	24	260	25	1,404	116
1977	AVERAGE	1,566	161	-55	233	18	1,422	136
1978	AVERAGE	1,537	123	12	239	20	1,413	132
1979	AVERAGE	1,556	217	70	236	15	1,592	111
1980	AVERAGE	1,535	216	-27	233	21	1,469	³ 120
1981	AVERAGE	1,571	244	-18	289	42	1,466	135
1982	January	1,565	314	443	391	67	1,863	121
	February	1,466	291	243	327	51	1,621	114
	March	1,544	223	211	289	74	1,615	108
	April	1,506	188	98	257	77	1,458	105
	May	1,565	186	-71	234	43	1,403	107
	June	1,515	192	-86	262	106	1,254	109
	July	1,476	227	-13	253	37	1,399	110
	August	1,511	125	-45	254	61	1,276	111
	September	1,538	247	37	274	85	1,483	110
	October	1,517	194	97	306	81	1,421	107
	November	1,542	267	175	363	37	1,583	102
	December	1,580	258	256	395	56	1,642	³ 94
	AVERAGE	1,528	228	111	300	65	1,499	
1983	January	1,662	240	³ 618	313	118	2,088	84
	February	1,560	305	84	237	76	1,636	81
	March	1,517	166	-51	189	127	1,316	83
	April	1,531	124	-107	198	116	1,232	86
	May	1,545	167	-326	207	84	1,094	96
	June	1,593	172	-333	205	59	1,169	106
	July	1,571	191	-206	217	55	1,284	112
	August	1,505	160	-183	229	29	1,225	118
	September	1,625	178	-23	236	86	1,457	119
	October	1,688	160	-61	268	32	1,487	121
	November	1,784	180	78	361	33	1,648	118
	December*	1,644	247	575	358	68	2,043	101
	AVERAGE	1,602	190	6	252	73	1,473	

¹ Stocks are totals as of end of period.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

* See Explanatory Note 9.5.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

Other Petroleum Products¹ Supply and Disposition

		Supply			Disposition			Ending Stocks ²
		Total Production	Imports	Stock Withdrawal ³	Refinery Inputs	Exports	Products Supplied	
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	3,693	502	-9	750	166	3,270	208
1974	AVERAGE	3,558	432	-28	665	174	3,123	⁴ 218
1975	AVERAGE	3,424	277	⁴ -2	537	160	3,002	219
1976	AVERAGE	3,643	206	-5	524	175	3,145	220
1977	AVERAGE	3,912	205	-27	514	165	3,410	230
1978	AVERAGE	4,046	166	14	492	167	3,566	225
1979	AVERAGE	4,153	195	-37	352	209	3,749	236
1980	AVERAGE	3,956	210	-23	311	198	3,634	⁴ 247
1981	AVERAGE	3,739	226	⁴ 46	723	199	3,088	282
1982	January	3,171	269	-7	624	180	2,631	282
	February	3,403	305	-153	663	138	2,755	287
	March	3,466	249	-191	725	161	2,631	293
	April	3,408	309	73	796	204	2,790	290
	May	3,317	318	184	824	210	2,765	285
	June	3,547	315	123	812	216	2,954	281
	July	3,660	408	-1	856	187	3,023	281
	August	3,583	346	217	743	202	3,201	274
	September	3,533	375	105	749	213	3,051	271
	October	3,529	383	244	915	268	2,976	264
	November	3,498	423	-28	837	269	2,786	264
	December	3,324	313	366	885	275	2,842	⁴ 253
	AVERAGE	3,453	334	80	787	211	2,869	
1983	January	3,222	297	⁴ -371	570	271	2,307	271
	February	3,270	287	-1	680	232	2,645	271
	March	3,400	298	-94	570	249	2,786	273
	April	3,363	377	3	598	247	2,901	273
	May	3,448	364	26	694	242	2,902	273
	June	3,674	427	99	715	292	3,187	270
	July	3,703	393	106	757	209	3,237	266
	August	3,774	435	23	689	242	3,302	266
	September	3,861	460	-31	768	236	3,287	267
	October	3,579	427	-124	701	195	2,985	270
	November	3,560	442	101	912	238	2,955	267
	December*	3,106	450	367	877	257	2,808	255
	AVERAGE	3,498	388	10	711	242	2,943	

¹ Includes natural gasoline and isopentane, unrefined stream, plant condensate, other liquids; and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil, and liquefied petroleum gases.

² Stocks are totals as of end of period.

³ A negative number indicates an increase in stocks and a positive number indicates a decrease.

⁴ In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

* See Explanatory Note 9.6.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

Sources

1. 1973 through 1976: U.S. Department of the Interior, Bureau of Mines, Mineral Industry Surveys, "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual."
2. 1977 through 1980: Energy Information Administration (EIA), *Energy Data Reports*, "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual," and unleaded gasoline data from *Monthly Petroleum Statistics Report*.
3. January 1981 through December 1982: EIA, *Petroleum Supply Annual*.
4. January 1983 through December 1983: Detailed statistics in appropriate issues of the Petroleum Supply Monthly. (see Explanatory Notes 9.1 through 9.6).
5. January 1984: Estimates based on EIA weekly data (except domestic crude oil production) (see Explanatory Note 1.1).
6. January 1983 through January 1984: Domestic crude oil production estimate based on historical statistics from State Conservation Agencies and the U.S. Geological Survey. (See Explanatory Note 3).

Detailed Statistics

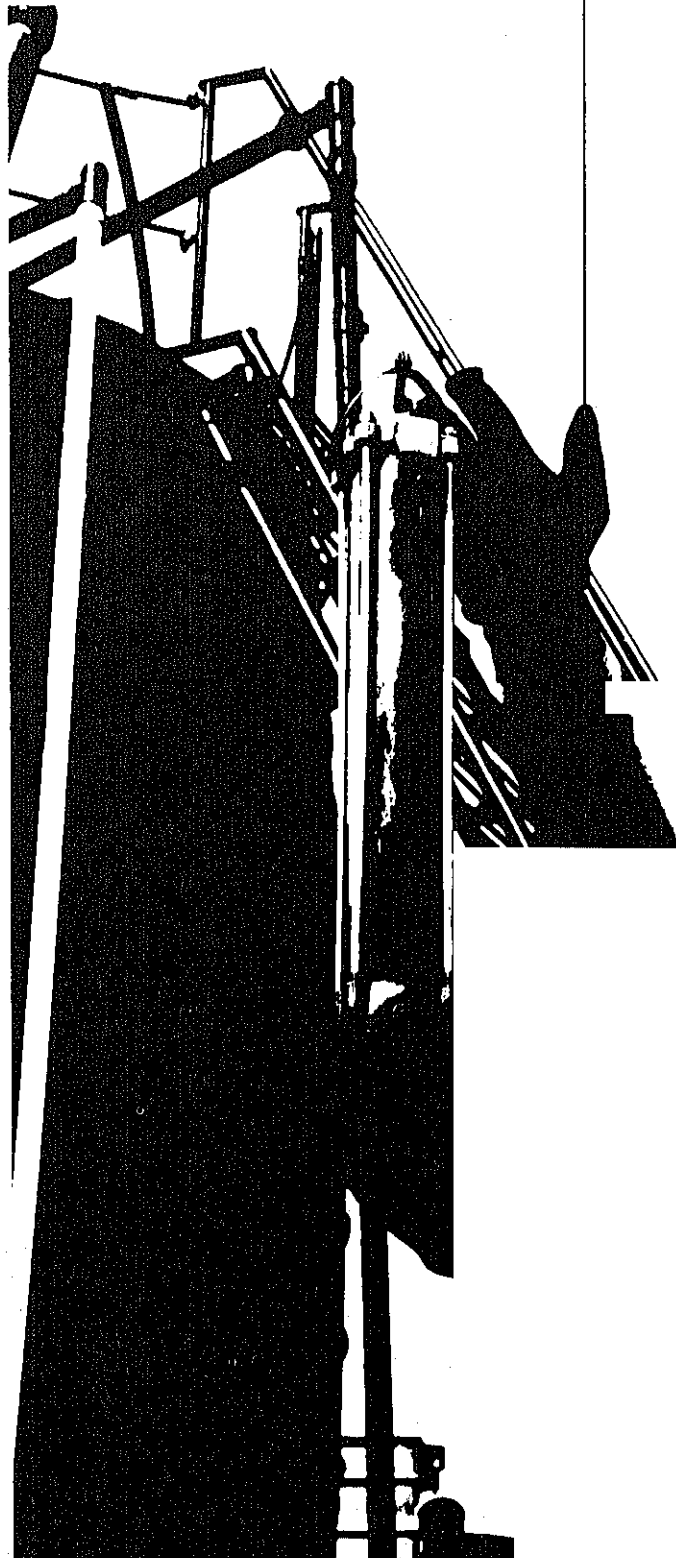


Table 1. U.S. Petroleum Balance, December 1983

	Current Month		Year-to-date	
	Thousand Barrels	Thousand Barrels per Day	Thousand Barrels	Thousand Barrels per Day
Crude Oil (Including Lease Condensate)				
Field Production				
(1) Alaska	E 53,088	1,713	E 625,811	1,715
(2) Lower 48 States	E 213,892	8,900	E 2,533,564	6,941
(3) Total U.S.	E 266,980	8,612	E 3,159,375	8,656
Net Imports				
(4) Imports (Gross Excluding SPR)	93,660	3,021	1,120,128	3,069
(5) SPR Imports	5,975	193	85,285	234
(6) Exports	2,937	95	59,948	164
(7) Imports (Net Including SPR)	96,698	3,119	1,145,465	3,138
Other Sources				
(8) SPR Withdrawal (+) or Addition (-)	-7,798	-252	-85,282	-234
(9) Other Stock Withdrawal (+) or Addition (-)	-1,693	-55	6,868	19
(10) Product Supplied and Losses	-2,108	-68	-24,170	-66
(11) Unaccounted for 1	-4,382	-141	57,857	159
(12) Total Other Sources	-15,961	-515	-44,707	-122
(13) Crude Input to Refineries	347,717	11,217	4,260,133	11,672
(13) = (3) + (7) + (12)				
Natural Gas Plant Liquids (NGPL)				
(14) Field Production	47,532	1,533	570,710	1,564
(15) Imports 2	520	17	5,166	14
(16) Stock Withdrawal (+) or Addition (-) 2	776	25	-4,491	-12
(17) Total NGPL Supply	48,830	1,575	571,385	1,565
Other Liquids				
Unfinished Oils and Gasoline Blending Components, Total				
(18) Stock Withdrawal (+) or Addition (-)	4,453	144	2,802	8
(19) Imports	9,866	318	97,853	268
(20) Other Hydrocarbons and Alcohol New Supply (Field Production)	1,319	43	19,172	53
(21) Refinery Processing Gain 1	14,047	453	175,717	481
(22) Crude Oil Product Supplied	2,063	67	23,631	65
(23) Total Other Liquids	31,748	1,024	319,175	874
(23) = (18) through (22)				
(24) Total Production of Products 3	428,294	13,816	5,150,693	14,111
(24) = (13) + (17) + (23)				
Net Imports of Refined Products 3				
(25) Imports (Gross)	44,558	1,437	512,346	1,404
(26) Exports	16,866	544	209,906	575
(27) Imports (Net)	27,692	893	302,440	829
(28) Total New Supply of Products	455,986	14,709	5,453,133	14,940
(28) = (24) + (27)				
(29) Refined Products Stock Withdrawal (+) or Addition (-) 3	61,433	1,982	89,000	244
(30) Total Petroleum Products Supplied for Domestic Use	517,419	16,691	5,542,133	15,184
(30) = (28) + (29)				
(31) Finished Motor Gasoline	212,226	6,846	2,415,377	6,617
(32) Distillate Fuel Oil	104,087	3,358	978,958	2,682
(33) Residual Fuel Oil	48,673	1,570	512,175	1,403
(34) Liquefied Petroleum Gases	63,335	2,043	637,661	1,473
(35) Other 4	87,035	2,808	1,074,330	2,943
(36) Crude Oil	2,063	67	23,631	65
(37) Total Product Supplied	517,419	16,691	5,542,133	15,184
(37) = (31) through (36)				
Ending Stocks, All Oils				
(38) Crude Oil and Lease Condensate (Excluding SPR)	343,176	—	343,176	—
(39) Strategic Petroleum Reserve (SPR)	379,089	—	379,089	—
(40) Unfinished Oils	107,498	—	107,498	—
(41) Gasoline Blending Components	37,522	—	37,522	—
(42) Natural Gasoline and Unfractionated Stream 2	15,959	—	15,959	—
(43) Finished Refined Products 3	569,856	—	569,856	—
(44) Total Stocks	1,453,100	—	1,453,100	—

1 A balancing item.

2 Includes isopentane, natural gasoline, unfractionated stream, and plant condensate only.

3 For products included see Explanatory Note 9.7.

4 Includes natural gasoline and isopentane, unfractionated stream, plant condensate, other liquids; and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil and liquefied petroleum gases.

E = Estimated.

— Not Applicable.

Note: Totals may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes 1, 2 and 9.7.

Table 2. Supply and Disposition of Crude Oil and Petroleum Products, December 1983
(Thousand Barrels)

Commodity	Supply				Disposition					
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Crude Losses	Refinery Inputs	Exports	Products Supplied	Ending Stocks
Crude Oil (including lease condensate)										
E 266,980	0	99,635	-9,491	-4,362	45	347,717	2,937	2,063	722,265	
Natural Gas Liquids and LRGs										
Natural Gasoline and Isopentane	47,315	9,162	8,184	18,614	0	17,089	2,056	64,130	116,522	
Unfractionated Stream	5,606	0	277	-188	0	4,901	0	794	6,306	
Plant Condensate	-1,050	0	0	1,050	0	0	0	0	9,062	
Liquefied Petroleum Gases	945	0	243	-84	0	1,102	0	2	591	
Ethane	41,814	9,162	7,665	17,836	0	11,086	2,056	63,335	100,563	
Propane	9,205	139	1,535	172	0	43	(9)	11,007	7,433	
Butane	15,055	7,954	1,853	12,324	0	144	852	36,190	48,194	
Butane-Propane Mixtures	6,550	1,014	1,948	4,780	0	6,749	1,204	6,339	18,443	
Ethane-Propane Mixtures	119	8	823	134	0	269	0	815	1,624	
Isobutane	7,820	0	1,506	-399	0	0	0	8,927	15,153	
.....	3,065	47	0	825	0	3,881	0	56	9,716	
Other Liquids										
Other Hydrocarbons and Alcohol	1,319	0	9,866	4,453	0	21,199	0	-5,561	145,020	
Unfinished Oils	1,319	0	0	-3	0	1,315	0	0	285	
Motor Gasoline Blending Components	0	0	8,200	1,496	0	14,448	0	-4,752	107,498	
Aviation Gasoline Blending Components	0	0	1,666	2,990	0	5,466	0	-810	36,920	
.....	0	0	0	-30	0	-31	0	1	317	
Finished Petroleum Products										
Finished Motor Gasoline	217	390,890	36,893	43,597	0	0	14,810	456,787	469,293	
Finished Leaded Motor Gasoline	48	195,688	6,735	10,541	0	0	786	212,226	185,495	
Finished Unleaded Motor Gasoline	31	84,607	3,088	2,316	0	0	786	89,256	94,084	
Finished Aviation Gasoline	17	111,081	3,647	8,225	0	0	0	122,970	91,411	
Naphtha-Type Jet Fuel	32	489	1	119	0	0	0	641	2,291	
Kerosene-Type Jet Fuel	0	5,824	0	429	0	0	0	6,253	6,213	
Kerosene	0	23,298	524	6,878	0	0	458	30,242	32,368	
Distillate Fuel Oil	1	4,116	579	2,359	0	0	3	7,052	7,860	
Residual Fuel Oil	0	78,238	6,581	20,937	0	0	1,669	104,087	140,402	
Naphtha < 400 Deg. for Petro. Feed. Use	0	27,668	20,025	5,354	0	0	4,374	48,673	49,108	
Other Oils > 400 Deg. for Petro. Feed. Use	0	3,477	71	85	0	0	225	3,408	1,712	
Special Naphthas	0	6,423	0	247	0	0	356	6,314	1,757	
Lubricants	69	1,346	700	-74	0	0	37	2,004	3,153	
Waxes	0	4,502	347	-590	0	0	450	3,810	12,075	
Petroleum Coke	0	463	88	13	0	0	27	537	777	
Asphalt and Road Oil	0	13,385	0	25	0	0	6,355	7,055	5,481	
Still Gas	0	7,402	6	-3,034	0	0	34	4,340	18,792	
Miscellaneous Products	0	16,602	0	0	0	0	0	16,602	0	
.....	67	1,969	1,235	308	0	0	36	3,543	1,809	
Total	315,831	400,052	154,578	57,173	-4,362	45	386,005	19,803	517,419	1,453,100

¹ Unaccounted for crude oil is a balancing item.

(9) Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 3. Year-to-Date Supply and Disposition of Crude Oil and Petroleum Products, January - December 1983
(Thousand Barrels)

Commodity	Supply			Disposition						
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil	Crude Losses	Refinery Inputs	Exports	Products Supplied	Ending Stocks
Crude Oil (including lease condensate)	E 3,159,375	0	1,205,413	-78,394	57,857	539	4,260,133	59,948	23,631	722,265
Natural Gas Liquids and LRGs	566,480	118,487	74,584	-2,336	0	0	169,464	26,786	560,965	116,522
Natural Gasoline and Isopentane	86,969	0	2,635	-319	0	0	66,005	0	23,280	6,306
Unfractionated Stream	5,192	0	0	-5,023	0	0	169	0	0	9,062
Plant Condensate	8,042	0	2,531	851	0	0	11,400	0	24	591
Liquefied Petroleum Gases	466,277	118,487	69,419	2,155	0	0	91,890	26,786	537,661	100,563
Ethane	95,490	5,591	16,666	-1,462	0	0	913	31	115,341	7,433
Propane	164,155	97,555	16,015	10,043	0	0	1,537	15,588	270,643	48,194
Butane	75,048	13,782	17,387	-1,761	0	0	53,741	11,168	39,547	18,443
Butane-Propane Mixtures	1,906	1,223	6,532	501	0	0	2,922	0	7,240	1,624
Ethane-Propane Mixtures	95,160	0	12,819	-3,871	0	0	48	0	104,060	15,153
Isobutane	34,518	336	0	-1,295	0	0	32,729	0	830	9,716
Other Liquids	19,172	0	97,853	2,802	0	0	181,823	0	-61,996	145,020
Other Hydrocarbons and Alcohol	19,172	0	0	26	0	0	19,198	0	0	285
Unfinished Oils	0	0	85,165	-2,221	0	0	116,139	0	-33,195	107,498
Motor Gasoline Blending Components	0	0	12,688	4,822	0	0	45,829	0	-28,319	36,920
Aviation Gasoline Blending Components	0	0	1	175	0	0	657	0	-481	317
Finished Petroleum Products	4,230	4,668,650	442,927	86,845	0	0	0	183,120	5,019,533	469,293
Finished Motor Gasoline	775	2,310,413	90,901	17,042	0	0	0	3,754	2,415,377	185,495
Finished Leaded Motor Gasoline	524	1,032,682	47,128	8,071	0	0	0	3,754	1,084,651	94,084
Finished Unleaded Motor Gasoline	251	1,277,731	43,773	8,971	0	0	0	0	1,330,726	91,411
Finished Aviation Gasoline	1,157	7,981	214	23	0	0	0	0	9,375	2,291
Naphtha-Type Jet Fuel	0	74,187	0	976	0	0	0	201	74,962	6,213
Kerosene-Type Jet Fuel	1	298,097	9,629	-367	0	0	0	1,954	305,407	32,368
Kerosene	38	40,121	3,608	2,932	0	0	0	297	46,402	7,860
Distillate Fuel Oil	11	895,521	61,645	45,177	0	0	0	23,396	978,958	140,402
Residual Fuel Oil	0	308,945	251,609	19,121	0	0	0	67,500	512,175	49,108
Naphtha < 400 Deg. for Petro. Feed. Use	0	50,356	4,409	255	0	0	0	1,891	53,129	1,712
Other Oils > 400 Deg. for Petro. Feed. Use	0	93,390	181	423	0	0	0	5,318	88,676	1,757
Special Naphthas	1,138	19,919	8,320	321	0	0	0	1,040	28,658	3,153
Lubricants	0	53,561	2,995	1,106	0	0	0	5,739	51,924	12,075
Waxes	0	5,497	361	9	0	0	0	283	5,585	777
Petroleum Coke	0	153,073	0	1,240	0	0	0	71,084	83,229	5,481
Asphalt and Road Oil	0	135,626	2,420	-1,523	0	0	0	290	136,234	18,792
Still Gas	0	200,729	0	0	0	0	0	0	200,729	0
Miscellaneous Products	1,110	21,234	6,635	110	0	0	0	375	28,714	1,809
Total	3,749,257	4,787,137	1,820,778	8,917	57,857	539	4,611,420	269,854	5,542,133	1,453,100

¹ Unaccounted for crude oil is a balancing item.

(b) Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 4. Daily Average Supply and Disposition of Crude Oil and Petroleum Products, December 1983
(Thousand Barrels per Day)

Commodity	Supply			Disposition					
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Crude Losses	Refinery Inputs	Exports	Products Supplied
Crude Oil (including lease condensate)	E 8,612	0	3,214	-306	-141	1	11,217	95	67
Natural Gas Liquids and LRGs	1,526	296	264	600	0	0	551	66	2,069
Natural Gasoline and Isopentane	181	0	9	-6	0	0	158	0	26
Unfractionated Stream	-34	0	0	34	0	0	0	0	0
Plant Condensate	30	0	8	-3	0	0	36	0	(s)
Liquefied Petroleum Gases	1,349	296	247	575	0	0	358	66	2,043
Ethane	297	4	50	6	0	0	1	(s)	355
Propane	486	257	60	398	0	0	5	27	1,167
Butane	211	33	63	154	0	0	218	39	204
Butane-Propane Mixtures	4	(s)	27	4	0	0	9	0	26
Ethane-Propane Mixtures	252	0	49	-13	0	0	0	0	288
Isobutane	99	2	0	27	0	0	125	0	2
Other Liquids	43	0	318	144	0	0	684	0	-179
Other Hydrocarbons and Alcohol	43	0	0	(s)	0	0	42	0	0
Unfinished Oils	0	0	265	48	0	0	466	0	-153
Motor Gasoline Blending Components	0	0	54	96	0	0	176	0	-26
Aviation Gasoline Blending Components	0	0	0	-1	0	0	-1	0	(s)
Finished Petroleum Products	7	12,609	1,190	1,406	0	0	0	478	14,735
Finished Motor Gasoline	2	6,313	217	340	0	0	0	25	6,846
Finished Leaded Motor Gasoline	1	2,729	100	75	0	0	0	25	2,879
Finished Unleaded Motor Gasoline	1	3,583	118	265	0	0	0	0	3,967
Finished Aviation Gasoline	1	16	(s)	4	0	0	0	0	21
Naphtha-Type Jet Fuel	0	188	0	14	0	0	0	0	202
Kerosene-Type Jet Fuel	0	752	17	222	0	0	0	15	976
Kerosene	(s)	133	19	76	0	0	0	(s)	227
Distillate Fuel Oil	0	2,524	212	675	0	0	0	54	3,358
Residual Fuel Oil	0	893	646	173	0	0	0	141	1,570
Naphtha < 400 Deg. for Petro. Feed. Use	0	112	2	3	0	0	0	7	110
Other Oils > 400 Deg. for Petro. Feed. Use	0	207	0	8	0	0	0	11	204
Special Naphthas	2	43	23	-2	0	0	0	1	65
Lubricants	0	145	11	-19	0	0	0	15	123
Waxes	0	15	3	(s)	0	0	0	1	17
Petroleum Coke	0	432	0	1	0	0	0	205	228
Asphalt and Road Oil	0	239	(s)	-98	0	0	0	1	140
Still Gas	0	536	0	0	0	0	0	0	536
Miscellaneous Products	2	64	40	10	0	0	0	1	114
Total	10,188	12,905	4,986	1,844	-141	1	12,452	639	16,691

¹ Unaccounted for crude oil is a balancing item.

(s) Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 5. Year-to-Date Daily Average Supply and Disposition of Crude Oil and Petroleum Products, January - December 1983
(Thousand Barrels per Day)

Commodity	Supply				Disposition				
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Crude Losses	Refinery Inputs	Exports	Products Supplied
Crude Oil (including lease condensate)	E 8,656	0	3,303	-215	159	1	11,672	164	65
Natural Gas Liquids and LRGs	1,552	325	204	-6	0	0	464	73	1,537
Natural Gasoline and Isopentane	238	0	7	-1	0	0	181	0	64
Unfractionated Stream	14	0	0	-14	0	0	(s)	0	0
Plant Condensate	22	0	7	2	0	0	31	0	(s)
Liquefied Petroleum Gases	1,277	325	190	6	0	0	252	73	1,473
Ethane	262	15	46	-4	0	0	3	(s)	316
Propane	450	267	44	28	0	0	4	43	741
Butane	206	38	48	-5	0	0	147	31	108
Butane-Propane Mixtures	5	3	18	1	0	0	8	0	20
Ethane-Propane Mixtures	261	0	35	-11	0	0	(s)	0	285
Isobutane	95	1	0	-4	0	0	90	0	2
Other Liquids	53	0	268	8	0	0	498	0	-170
Other Hydrocarbons and Alcohol	53	0	0	(s)	0	0	53	0	0
Unfinished Oils	0	0	233	-6	0	0	318	0	-91
Motor Gasoline Blending Components	0	0	35	13	0	0	126	0	-78
Aviation Gasoline Blending Components	0	0	(s)	(s)	0	0	2	0	-1
Finished Petroleum Products	12	12,791	1,213	238	0	0	0	502	13,752
Finished Motor Gasoline	2	6,330	249	47	0	0	0	10	6,617
Finished Leaded Motor Gasoline	1	2,829	129	22	0	0	0	10	2,972
Finished Unleaded Motor Gasoline	1	3,501	120	25	0	0	0	0	3,646
Finished Aviation Gasoline	3	22	1	(s)	0	0	0	0	26
Naphtha-Type Jet Fuel	0	203	0	3	0	0	0	1	205
Kerosene-Type Jet Fuel	(s)	817	26	-1	0	0	0	5	837
Kerosene	(s)	110	10	8	0	0	0	1	127
Distillate Fuel Oil	(s)	2,453	169	124	0	0	0	64	2,682
Residual Fuel Oil	0	846	689	52	0	0	0	185	1,403
Naphtha < 400 Deg. for Petro. Feed. Use	0	138	12	1	0	0	0	5	146
Other Oils > 400 Deg. for Petro. Feed. Use	0	256	(s)	1	0	0	0	15	243
Special Naphthas	3	55	23	1	0	0	0	3	79
Lubricants	0	147	8	3	0	0	0	16	142
Waxes	0	15	1	(s)	0	0	0	1	15
Petroleum Coke	0	419	0	3	0	0	0	195	228
Asphalt and Road Oil	0	372	7	-4	0	0	0	1	373
Still Gas	0	550	0	0	0	0	0	0	550
Miscellaneous Products	3	58	18	(s)	0	0	0	1	79
Total	10,272	13,115	4,988	24	159	1	12,634	739	15,184

¹ Unaccounted for crude oil is a balancing item.

(s) Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 6. PAD District 1, Supply and Disposition of Crude Oil and Petroleum Products, December 1983
(Thousand Barrels)

Commodity	Supply					Disposition				Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied
Crude Oil (including lease condensate)	E 2,291	0	22,502	-824	3,383	1,263	5	28,600	0	0
Natural Gas Liquids and LRGs	910	1,187	1,284	1,137	0	3,866	0	271	50	8,063
Liquefied Petroleum Gases	603	1,187	886	1,152	0	3,866	0	246	50	7,397
Other Products ²	307	0	399	-15	0	0	0	25	0	666
Other Liquids	41	0	3,287	1,003	0	393	0	6,223	0	-1,499
Other Hydrocarbons and Alcohol	41	0	0	8	0	0	0	49	0	0
Unfinished Oils	0	0	2,710	753	0	313	0	5,646	0	-1,870
Motor Gasoline Blending Components	0	0	577	242	0	80	0	528	0	371
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0
Finished Petroleum Products	41	35,461	32,074	19,958	0	81,895	0	0	253	169,176
Finished Motor Gasoline	41	17,542	6,195	-503	0	48,024	0	0	1	71,298
Finished Leaded Motor Gasoline	24	6,907	2,972	-1,866	0	17,626	0	0	1	25,662
Finished Unleaded Motor Gasoline	17	10,635	3,223	1,363	0	30,398	0	0	0	45,636
Finished Aviation Gasoline	0	15	1	-83	0	268	0	0	0	201
Naphtha-Type Jet Fuel	0	788	0	170	0	482	0	0	0	1,440
Kerosene-Type Jet Fuel	0	455	430	1,888	0	10,608	0	0	0	13,381
Kerosene	0	391	567	1,089	0	1,009	0	0	3	3,053
Distillate Fuel Oil	0	8,146	6,055	13,021	0	19,290	0	0	(s)	46,512
Residual Fuel Oil	0	3,081	17,763	4,346	0	897	0	0	1	26,086
Naphtha and Other Oils for Petro. Feed.	0	313	4	38	0	138	0	0	43	450
Special Naphthas	0	21	48	-121	0	222	0	0	4	166
Lubricants	0	669	175	15	0	305	0	0	109	1,056
Waxes	0	96	28	5	0	3	0	0	4	128
Petroleum Coke	0	1,098	0	80	0	0	0	0	69	1,109
Asphalt and Road Oil	0	1,028	1	-118	0	212	0	0	3	1,120
Still Gas	0	1,625	0	0	0	0	0	0	0	1,625
Miscellaneous Products	0	193	808	131	0	437	0	0	16	1,553
Total	3,283	36,648	59,148	21,274	3,383	87,407	5	35,094	304	175,740
										203,835

¹ Unaccounted for crude oil is a balancing item.² Includes natural gasoline, isopentane, unfractionated stream, and plant condensate.

(s) Less than 500 barrels.

E Estimated.

Note: Total may not equal sum of components due to independent rounding. Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 7. PAD District II, Supply and Disposition of Crude Oil and Petroleum Products, December 1983
(Thousand Barrels)

Commodity	Supply					Disposition				Ending Stocks	
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs	Exports		Products Supplied
Crude Oil (including lease condensate)	E 32,333	0	15,364	1,218	32,063	2,361	7	82,971	361	0	72,335
Natural Gas Liquids and LRGs	10,179	2,038	5,097	7,252	0	4,406	0	5,974	994	22,005	34,839
Liquefied Petroleum Gases	10,378	2,038	5,097	7,513	0	3,032	0	4,648	994	22,417	29,296
Other Products ²	-199	0	0	-261	0	1,374	0	1,326	0	-412	5,543
Other Liquids	278	0	243	-133	0	1,204	0	1,597	0	-5	26,069
Other Hydrocarbons and Alcohol	278	0	0	-12	0	0	0	266	0	0	131
Unfinished Oils	0	0	189	-48	0	0	0	799	0	-658	18,217
Motor Gasoline Blending Components	0	0	54	-75	0	1,204	0	530	0	653	7,639
Aviation Gasoline Blending Components	0	0	0	2	0	0	0	2	0	0	82
Finished Petroleum Products	6	92,007	636	7,160	0	19,560	0	0	679	118,690	122,651
Finished Motor Gasoline	0	53,082	28	4,790	0	11,478	0	0	0	69,378	56,059
Finished Leaded Motor Gasoline	0	24,377	20	1,394	0	5,732	0	0	0	31,523	29,615
Finished Unleaded Motor Gasoline	0	28,705	9	3,396	0	5,746	0	0	0	37,856	26,444
Finished Aviation Gasoline	0	50	0	68	0	13	0	0	0	131	533
Naphtha-Type Jet Fuel	0	592	0	4	0	204	0	0	0	800	1,659
Kerosene-Type Jet Fuel	0	2,977	0	1,437	0	1,906	0	0	0	6,320	6,785
Kerosene	0	1,078	0	654	0	127	0	0	(s)	1,859	1,543
Distillate Fuel Oil	0	20,009	67	2,467	0	5,635	0	0	(s)	28,078	40,257
Residual Fuel Oil	0	3,059	352	-318	0	-128	0	0	0	2,965	3,953
Naphtha and Other Oils for Petro. Feed.	0	510	17	-20	0	21	0	0	71	457	255
Special Naphthas	0	417	32	-7	0	71	0	0	9	504	604
Lubricants	0	785	10	-25	0	294	0	0	12	1,053	2,101
Waxes	0	50	2	-9	0	0	0	0	(s)	43	85
Petroleum Coke	0	3,041	0	-189	0	0	0	0	585	2,267	815
Asphalt and Road Oil	0	2,793	3	-1,781	0	-10	0	0	(s)	1,004	7,866
Still Gas	0	3,400	0	0	0	0	0	0	0	3,400	0
Miscellaneous Products	6	164	125	89	0	49	0	0	2	431	136
Total	42,796	94,045	21,340	15,497	32,063	27,531	7	90,542	2,034	140,690	255,894

¹ Unaccounted for crude oil is a balancing item.

² Includes natural gasoline, isopentane, unfractionated stream, and plant condensate.

(s) Less than 500 barrels.

E Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 8. PAD District III, Supply and Disposition of Crude Oil and Petroleum Products, December 1983
(Thousand Barrels)

Commodity	Supply					Disposition					Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied	
Crude Oil (including lease condensate)	E 127,984	0	55,571	-12,841	-27,286	13,357	10	156,853	0	22	541,471
Natural Gas Liquids and LRGs	32,856	4,841	823	9,541	0	-7,188	0	9,440	942	30,492	73,217
Liquefied Petroleum Gases	29,290	4,841	823	8,488	0	-6,983	0	5,141	942	30,377	63,478
Other Products ²	3,566	0	0	1,053	0	-205	0	4,299	0	115	9,739
Other Liquids	618	0	5,499	5,876	0	-1,686	0	14,111	0	-3,804	62,119
Other Hydrocarbons and Alcohol	618	0	0	2	0	0	0	620	0	0	99
Unfinished Oils	0	0	5,272	2,646	0	-402	0	8,842	0	-1,326	46,227
Motor Gasoline Blending Components	0	0	226	3,247	0	-1,284	0	4,668	0	-2,479	15,591
Aviation Gasoline Blending Components	0	0	0	-19	0	0	0	-19	0	0	202
Finished Petroleum Products	161	180,771	2,333	17,051	0	-104,764	0	0	9,830	85,722	115,210
Finished Motor Gasoline	0	87,792	(9)	6,622	0	-61,537	0	0	784	32,093	44,528
Finished Leaded Motor Gasoline	0	36,678	(9)	2,946	0	-24,348	0	0	784	14,492	22,308
Finished Unleaded Motor Gasoline	0	51,114	0	3,676	0	-37,189	0	0	0	17,601	22,220
Finished Aviation Gasoline	32	310	0	106	0	-311	0	0	0	137	723
Naphtha-Type Jet Fuel	0	2,531	0	198	0	-863	0	0	0	0	2,151
Kerosene-Type Jet Fuel	0	12,545	27	2,660	0	-13,180	0	0	444	1,608	10,187
Kerosene	1	2,387	12	505	0	-1,136	0	0	(9)	1,769	2,589
Distillate Fuel Oil	0	35,312	301	6,017	0	-25,150	0	0	1,405	15,075	21,761
Residual Fuel Oil	0	11,576	866	975	0	-769	0	0	2,749	9,899	11,477
Naphtha and Other Oils for Petro. Feed	0	8,306	50	188	0	-159	0	0	457	7,929	2,577
Special Naphthas	69	837	611	41	0	-293	0	0	24	1,241	1,419
Lubricants	0	2,808	117	-213	0	-675	0	0	290	1,747	5,013
Waxes	0	234	53	16	0	-3	0	0	20	280	487
Petroleum Coke	0	5,310	0	241	0	0	0	0	3,614	1,937	1,407
Asphalt and Road Oil	0	1,827	0	-420	0	-202	0	0	29	1,176	3,761
Still Gas	0	7,563	0	0	0	0	0	0	0	7,563	0
Miscellaneous Products	59	1,433	296	115	0	-486	0	0	15	1,402	1,130
Total	161,619	185,512	64,326	19,627	-27,286	-100,281	10	180,404	10,772	112,431	792,017

¹ Unaccounted for crude oil is a balancing item.

² Includes natural gasoline, isopentane, unfractionated stream, and plant condensate.

(9) Less than 500 barrels.

E Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 9. PAD District IV, Supply and Disposition of Crude Oil and Petroleum Products, December 1983
(Thousand Barrels)

Thousands Barrels											
Commodity	Supply					Disposition					Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied	
Crude Oil (Including lease condensate)	E 16,756	0	945	-407	-4,629	0	0	12,656	0	9	13,573
Natural Gas Liquids and LRGs	2,439	77	574	55	0	-1,084	0	587	1	1,473	1,095
Liquefied Petroleum Gases	962	77	454	55	0	85	0	398	1	1,234	505
Other Products ²	1,477	0	121	0	0	-1,169	0	189	0	240	590
Other Liquids	6	0	28	172	0	0	0	-339	0	545	4,643
Other Hydrocarbons and Alcohol	6	0	0	0	0	0	0	6	0	0	0
Unfinished Oils	0	0	28	275	0	0	0	-336	0	639	2,570
Motor Gasoline Blending Components	0	0	0	-103	0	0	0	-9	0	-94	2,073
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0
Finished Petroleum Products	9	13,084	140	-1,400	0	375	0	0	3	12,205	11,920
Finished Motor Gasoline	7	6,842	38	-273	0	157	0	0	0	6,771	5,676
Finished Leaded Motor Gasoline	7	4,161	37	-184	0	-95	0	0	0	3,926	3,642
Finished Unleaded Motor Gasoline	0	2,681	1	-89	0	252	0	0	0	2,845	2,034
Finished Aviation Gasoline	0	12	0	-3	0	18	0	0	0	27	61
Naphtha-Type Jet Fuel	0	362	0	5	0	-121	0	0	0	246	293
Kerosene-Type Jet Fuel	0	413	0	167	0	519	0	0	0	1,099	540
Kerosene	0	153	0	11	0	0	0	0	0	164	28
Distillate Fuel Oil	0	3,427	74	-496	0	-198	0	0	(s)	2,806	3,317
Residual Fuel Oil	0	375	28	-12	0	0	0	0	0	391	467
Naphtha and Other Oils for Petro. Feed.	0	0	0	3	0	0	0	0	1	2	3
Special Naphthas	0	4	0	-1	0	0	0	0	(s)	3	12
Lubricants	0	39	(s)	-165	0	0	0	0	2	-128	230
Waxes	0	12	0	0	0	0	0	0	0	12	0
Petroleum Coke	0	266	0	-7	0	0	0	0	0	259	130
Asphalt and Road Oil	0	682	0	-626	0	0	0	0	(s)	56	1,153
Still Gas	0	469	0	0	0	0	0	0	0	469	0
Miscellaneous Products	2	28	(s)	-3	0	0	0	0	(s)	27	10
Total	19,210	13,161	1,688	-1,580	-4,629	-709	0	12,904	4	14,233	31,231

¹ Unaccounted for crude oil is a balancing item.

² Includes natural gasoline, isopentane, unfractionated stream, and plant condensate.

(s) Less than 500 barrels.

E Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 10. PAD District V, Supply and Disposition of Crude Oil and Petroleum Products, December 1983
(Thousand Barrels)

Commodity	Supply					Disposition					Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied	
Crude Oil (including lease condensate)	E 87,616	0	5,153	3,363	-7,893	-16,971	23	66,637	2,576	2,032	79,829
Natural Gas Liquids and LRGs	931	1,019	405	629	0	0	0	817	69	2,098	2,695
Liquefied Petroleum Gases	581	1,019	405	628	0	0	0	653	69	1,911	2,661
Other Products ²	350	0	0	1	0	0	0	164	0	187	34
Other Liquids	376	0	808	-2,465	0	89	0	-393	0	-799	34,119
Other Hydrocarbons and Alcohol	376	0	0	-1	0	0	0	375	0	0	5
Unfinished Oils	0	0	0	-2,130	0	89	0	-503	0	-1,538	26,801
Motor Gasoline Blending Components	0	0	808	-321	0	0	0	-251	0	738	7,280
Aviation Gasoline Blending Components	0	0	0	-13	0	0	0	-14	0	1	33
Finished Petroleum Products	0	69,567	1,709	828	0	2,934	0	0	4,044	70,994	53,480
Finished Motor Gasoline	0	30,430	474	-95	0	1,878	0	0	1	32,686	19,749
Finished Leaded Motor Gasoline	0	12,484	60	26	0	1,085	0	0	1	13,655	9,265
Finished Unleaded Motor Gasoline	0	17,946	414	-121	0	793	0	0	0	19,032	10,484
Finished Aviation Gasoline	0	102	0	31	0	12	0	0	0	145	442
Naphtha-Type Jet Fuel	0	1,551	0	52	0	298	0	0	0	1,901	1,639
Kerosene-Type Jet Fuel	0	6,908	68	726	0	147	0	0	14	7,834	5,775
Kerosene	0	107	(s)	100	0	0	0	0	(s)	207	252
Distillate Fuel Oil	0	11,344	85	-72	0	523	0	0	0	11,616	11,249
Residual Fuel Oil	0	9,577	1,016	363	0	0	0	0	263	9,332	8,219
Naphtha and Other Oils for Petro. Feed.	0	771	0	123	0	0	0	0	1,624	885	578
Special Naphthas	0	67	10	14	0	0	0	0	9	90	231
Lubricants	0	201	44	-202	0	76	0	0	(s)	82	1,407
Waxes	0	71	5	1	0	0	0	0	38	82	1,407
Petroleum Coke	0	3,670	0	-100	0	0	0	0	3	74	51
Asphalt and Road Oil	0	1,072	2	-89	0	0	0	0	2,087	1,483	2,047
Still Gas	0	3,545	0	0	0	0	0	0	2	984	1,808
Miscellaneous Products	0	151	6	-24	0	0	0	0	0	3,545	0
Total	88,923	70,586	8,075	2,355	-7,893	-13,948	23	67,061	6,689	74,325	170,123

1 Unaccounted for crude oil is a balancing item.

2 Includes natural gasoline, isopentane, unfractionated stream, and plant condensate.

(s) Less than 500 barrels.

E Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 11. Production of Crude Oil (Including Lease Condensate) by PAD District and State, for the Most Currently Available Month,¹ October 1983
(Thousand Barrels)

PAD District and State		Production	
	Total	Daily Average	
PAD District I			
Florida	1,526	49	
New York	E71	E2	
Pennsylvania	E364	E12	
Virginia	E4	E0	
West Virginia	E338	E11	
Adjustment 2	47	2	
Total PAD District I	E2,350	E76	
PAD District II			
Illinois	2,530	82	
Indiana	482	16	
Kansas	6,042	195	
Kentucky	638	21	
Michigan	E2,524	E81	
Missouri	E17	E1	
Nebraska	548	18	
North Dakota	4,339	140	
Ohio	E1,238	E40	
Oklahoma	13,301	429	
South Dakota	104	3	
Tennessee	76	2	
Adjustment 2	550	18	
Total PAD District II	E32,389	E1,045	
PAD District III			
Alabama	1,522	49	
Arkansas	E1,601	E52	
Louisiana	E39,245	E1,266	
Gulf Coast	2,895	93	
Rest of State	E42,140	E1,359	
Total Louisiana	2,713	88	
Mississippi			
New Mexico			
Northwestern	550	18	
Southeastern	5,966	192	
Total New Mexico	6,516	210	
Texas			
TRRC District 01	2,108	68	
TRRC District 02	3,464	112	
TRRC District 03	E10,329	E333	
TRRC District 04	2,376	77	
TRRC District 05	791	26	
TRRC District 06, excluding East Texas	3,551	115	
TRRC District 07B	2,911	94	
TRRC District 07C	2,894	93	
TRRC District 08	19,566	631	
TRRC District 08A	18,899	610	
TRRC District 09	3,323	107	
TRRC District 10	1,804	58	
East Texas	4,905	139	
Total Texas	E76,321	E2,462	
Adjustment 2	-2,296	-74	
Total PAD District III	E128,517	E4,146	

See footnotes at end of table.

—Continued

PAD District and State		Production	Daily Average
PAD District IV			
Colorado	2,459	79	
Montana	E2,626	E85	
Utah	E2,446	E79	
Wyoming	E9,607	E310	
Adjustment 2	-317	-10	
Total PAD District IV	E16,821	E543	
PAD District V			
Alaska			
South Alaska	2,023	65	
North Slope	51,695	1,668	
Adjustment for Alaska ²	-60	-2	
Total Alaska	53,658	1,731	
Arizona	21	1	
California			
Central Coastal	6,412	207	
East Central	21,545	695	
North	14	(^g)	
South	6,603	213	
Total California	34,574	1,115	
Nevada	114	4	
Adjustment for Arizona, California, and Nevada ²	-178	-6	
Total PAD District V	88,189	2,845	
United States Total	E268,266	E8,654	

¹ Includes the following offshore production (thousand barrels):

Alaska: 2,010;
California: Federal- 2,565, State- 3,214;
Louisiana: Federal- E26,722, State- 1,997;
Texas: Federal- E1,646, State- 216;
U.S. Total- E38,370.

² These adjustments are used to reconcile the national and PADD level sums of the State data with the independently estimated U.S. and Alaskan figures shown in the Summary Statistics portion of this issue and with the PADD level figures published in a previous issue. Final data at the State, PAD District and national levels will be published without adjustments in the Petroleum Supply Annual.

(^g) Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

E = Estimated.

- Data not available.

Table 12. Natural Gas Processing Plant Production of Petroleum Products by PAD District, 1 December 1983
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total		Rocky Mt.	Dist. V West Coast
Natural Gas Liquids	339	571	910	2	1,951	454	7,772	10,179	17,947	2,733	7,181	585	4,410	32,856	2,439	931	47,315
Natural Gasoline and Isopentane	51	32	83	0	78	62	1,547	1,687	1,273	3	1,421	98	341	3,136	343	357	5,606
Unfractionated Stream	0	224	224	2	663	87	-2,758	-2,006	10,454	-13,162	-524	33	2,946	-253	992	-7	-1,050
Plant Condensate	0	0	0	0	33	26	61	120	204	415	44	18	2	683	142	0	945
Liquefied Petroleum Gases	288	315	603	0	1,177	279	8,922	10,378	6,016	15,477	6,240	436	1,121	29,290	962	581	41,814
Ethane	82	167	249	0	478	0	1,280	1,758	907	3,950	2,197	34	94	7,182	16	0	9,205
Propane	127	99	226	0	539	173	3,562	4,274	2,162	4,616	2,138	126	510	9,552	659	344	15,055
Butane	68	32	100	0	102	91	1,466	1,659	921	2,199	728	166	306	4,320	281	190	6,550
Butane-Propane Mixtures	0	0	0	0	0	0	6	6	32	34	0	9	0	75	0	38	119
Ethane-Propane Mixtures	0	0	0	0	0	0	2,073	2,073	1,695	3,384	536	2	130	5,747	0	0	7,820
Isobutane	11	17	28	0	58	15	535	608	299	1,294	641	99	81	2,414	6	9	3,065
Finished Petroleum Products	41	0	41	0	1	0	5	6	136	8	1	14	2	161	9	0	217
Finished Motor Gasoline	41	0	41	0	0	0	0	0	0	0	0	0	0	0	7	0	48
Finished Leaded Motor Gasoline	24	0	24	0	0	0	0	0	0	0	0	0	0	0	7	0	31
Finished Unleaded Motor Gasoline	17	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	17
Finished Aviation Gasoline	0	0	0	0	0	0	0	0	32	0	0	0	0	32	0	0	32
Naphtha-Type Jet Fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene-Type Jet Fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distillate Fuel Oil	0	0	0	0	0	0	0	0	-1	0	0	0	2	1	0	0	1
Special Naphthas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Products	0	0	0	0	0	0	0	0	69	0	0	0	0	69	0	0	69
Total Production	380	571	951	2	1,952	454	7,777	10,185	18,083	2,741	7,182	599	4,412	33,017	2,448	931	47,532

¹ Production represents quantity of natural gas processing plant output less input to fractionating facilities.
Source: See Explanatory Notes on Data Collection and Estimation.

Table 13. Refinery Input of Crude Oil and Petroleum Products by PAD District, December 1983
(Thousand Barrels, Except Where Noted)

Commodity	PAD District I		PAD District II					PAD District III				PAD District IV		United States			
	East Coast #1	Appalachian #1	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okl., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mt.	Dist. V West Coast		
Crude Oil (including lease condensate)	26,034	2,566	28,600	1,749	54,465	8,619	18,138	82,971	13,533	80,018	55,954	4,832	2,516	156,853	12,656	66,637	347,717
Natural Gas Liquids																	
Natural Gasoline and Isopentane	25	0	25	0	671	53	482	1,206	1,071	1,707	467	56	98	3,399	107	164	4,901
Unfractionated Stream	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plant Condensate	0	0	0	108	0	12	0	120	0	701	0	196	3	900	82	0	1,102
Liquefied Petroleum Gases	196	50	246	201	3,160	523	764	4,648	879	2,134	1,904	131	93	5,141	398	653	11,086
Ethane	0	0	0	0	0	0	0	0	0	2	41	0	0	43	0	0	43
Propane	11	0	11	0	77	2	0	79	0	0	46	0	0	46	8	0	144
Butane	110	50	160	116	2,247	436	505	3,304	526	947	968	45	23	2,509	272	504	6,749
Butane-Propane Mixtures	0	0	0	0	3	22	0	25	0	73	25	0	39	137	79	28	269
Ethane-Propane Mixtures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isobutane	75	0	75	85	833	63	259	1,240	353	1,112	824	86	31	2,406	39	121	3,881
Other Liquids																	
Other Hydrocarbons and Alcohol	49	0	49	0	266	0	0	266	1	241	376	0	2	620	6	375	1,316
Unfinished Oil (net)	5,590	56	5,646	23	1,061	82	-367	799	708	6,327	1,584	179	44	8,842	-336	-503	14,448
Motor Gasoline Blending																	
Components (net)	517	11	528	14	739	-113	-110	530	45	3,201	1,464	-35	-7	4,668	-9	-251	5,466
Aviation Gasoline Blending																	
Components (net)	0	0	0	0	-13	0	15	2	0	32	-51	0	0	-19	0	-14	-31
Total Input to Refineries	32,411	2,683	35,094	1,987	60,457	9,164	18,934	90,542	16,237	94,361	61,698	5,359	2,749	180,404	12,904	67,061	386,005
Crude Oil Distillation																	
Gross Input (daily average)	879	83	962	56	1,769	290	595	2,711	453	2,658	1,812	157	82	5,161	412	2,161	11,406
Operable Capacity (daily average)	1,473	174	1,647	66	2,351	295	844	3,556	608	3,911	2,540	295	107	7,462	559	3,118	16,342
Operating Ratio (percent) ¹	59.7	47.5	58.4	85.5	75.2	98.3	70.6	76.2	74.5	68.0	71.3	53.2	76.3	69.2	73.6	69.3	69.8
Crude Oil Qualities																	
Sulfur Content, Weighted Average (percent) .....	.92	.35	.87	.61	.88	1.56	.56	.88	.52	.97	1.05	1.44	.75	.97	.91	1.01	.95
API Gravity, Weighted Average	32.24	40.96	32.95	37.20	36.01	30.92	37.12	35.75	38.83	34.76	39.00	32.77	38.73	34.49	35.93	25.07	32.92
Operable Capacity (daily average)																	
Operating	1,473	174	1,647	66	2,351	295	844	3,556	608	3,911	2,540	295	107	7,462	559	3,118	16,342
Idle	1,220	110	1,330	66	2,156	295	771	3,288	505	3,657	2,328	238	107	6,834	532	2,857	14,840
	253	64	317	0	194	0	73	268	104	254	212	57	0	628	28	261	1,502

¹ Represents gross input divided by operable capacity.
Note: Total may not equal sum of components due to independent rounding.
Source: See Explanatory Notes on Data Collection and Estimation.

Table 14. Refinery Production of Petroleum Products by PAD District, December 1983
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okl., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total			
Liquefied Refinery Gases	1,167	20	1,187	41	1,675	185	137	2,038	-84	2,664	2,085	78	98	4,841	77	1,019	9,162
For Petrochemical Feedstock Use	429	0	429	0	188	0	35	223	35	1,409	1,120	21	0	2,585	7	100	3,344
For Other Uses	738	20	758	41	1,487	185	102	1,815	-119	1,255	965	57	98	2,256	70	919	5,818
Ethane	0	0	0	0	0	2	0	2	0	126	11	0	0	137	0	0	139
For Petrochemical Feedstock Use	0	0	0	0	0	0	0	0	0	126	1	0	0	127	0	0	127
For Other Uses	0	0	0	0	0	2	0	2	0	0	0	0	0	10	0	0	12
Propane	1,033	20	1,053	41	1,577	183	373	2,174	182	2,163	1,299	51	54	3,749	162	816	7,954
For Petrochemical Feedstock Use	359	0	359	0	188	0	35	223	35	947	205	0	0	1,187	0	79	1,848
For Other Uses	674	20	694	41	1,389	183	338	1,951	147	1,216	1,094	51	54	2,562	162	737	6,106
Butane	134	0	134	0	106	0	-236	-130	-267	363	775	24	4	899	-64	175	1,014
For Petrochemical Feedstock Use	70	0	70	0	0	0	0	0	0	292	914	21	0	1,227	4	21	1,322
For Other Uses	64	0	64	0	106	0	-236	-130	-267	71	-139	3	4	-328	-68	154	-308
Butane-Propane Mixtures	0	0	0	0	0	0	0	0	1	-32	0	0	3	40	12	28	8
For Petrochemical Feedstock Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
For Other Uses	0	0	0	0	0	0	0	0	1	-32	0	0	3	40	12	28	8
Isobutane for Petro. Feed. Use	0	0	0	0	0	0	0	0	0	44	0	0	0	44	3	0	47
Finished Motor Gasoline	16,546	996	17,542	1,193	35,940	4,795	11,154	53,082	9,388	45,233	30,267	1,700	1,204	87,792	6,842	30,430	195,688
Finished Lead Motor Gasoline	6,434	473	6,907	582	15,143	2,535	6,117	24,377	4,928	17,630	12,671	788	661	36,678	4,161	12,484	84,607
Finished Unleaded Motor Gasoline	10,112	523	10,635	611	20,797	2,260	5,037	28,705	4,460	27,603	17,596	912	543	51,114	2,681	17,946	111,081
Finished Aviation Gasoline	15	0	15	0	50	0	0	50	-1	213	98	0	0	310	12	102	489
Naphtha-Type Jet Fuel	755	33	788	47	202	91	252	592	492	1,069	470	130	370	2,531	362	1,551	5,824
Kerosene-Type Jet Fuel	455	0	455	-20	2,308	229	460	2,977	700	5,483	6,339	2	21	12,545	413	6,908	23,298
Kerosene	291	100	391	114	756	132	76	1,078	7	985	1,314	55	26	2,387	153	107	4,116
Distillate Fuel Oil	7,432	714	8,146	412	12,066	2,390	5,141	20,009	3,278	18,710	10,989	1,504	831	35,312	3,427	11,344	78,238
Residual Fuel Oil	2,912	169	3,081	82	1,820	857	300	3,059	661	7,094	3,500	285	36	11,576	375	9,577	27,668
Naphtha < 400 Deg. For Petro. Feed. Use	311	0	311	0	338	0	78	416	523	1,853	134	51	0	2,561	0	189	3,477
Other Oils > 400 Deg. For Petro. Feed. Use	2	0	2	0	94	0	0	94	66	3,757	1,922	0	0	5,745	0	582	6,423
Special Naphthas	5	16	21	0	268	0	149	417	24	639	-8	182	0	837	4	67	1,346
Lubricants	320	349	669	0	463	0	322	785	9	1,728	817	254	0	2,808	39	201	4,502
Waxes	20	76	96	0	17	0	33	50	6	103	72	53	0	234	12	71	463
Petroleum Coke	1,080	18	1,098	26	2,002	423	590	3,041	294	2,605	2,294	105	12	5,310	266	3,670	13,385
Marketable	286	0	286	0	1,060	305	403	1,768	58	1,195	1,587	86	0	2,926	118	2,946	8,044
Catalyst	794	18	812	26	942	118	187	1,273	236	1,410	707	19	12	2,384	148	724	5,341
Asphalt and Road Oil	1,030	-2	1,028	99	2,018	129	547	2,793	335	177	415	773	127	1,827	682	1,072	7,402
Still Gas	1,520	105	1,625	61	2,310	333	696	3,400	381	4,205	2,726	197	54	7,563	469	3,545	16,802
For Petrochemical Feedstock Use	142	0	142	0	2	0	0	2	1	405	77	0	0	483	34	73	734
For Other Uses	1,378	105	1,483	61	2,308	333	696	3,398	380	3,800	2,649	197	54	7,080	435	3,472	15,868
Miscellaneous Products	151	42	193	3	83	32	46	164	118	762	527	26	0	1,433	28	151	1,969
Fuel Use	2	22	24	0	0	0	4	4	0	-10	346	0	0	336	3	17	384
Non-Fuel Use	149	20	169	3	83	32	42	160	118	772	181	26	0	1,097	25	134	1,585
Total Production	34,012	2,636	36,648	2,058	62,410	9,596	19,981	94,045	16,197	97,280	63,961	5,395	2,779	185,612	13,161	70,586	400,052
Processing Gain(-) or Loss(+) ¹	-1,601	47	-1,554	-71	-1,953	-432	-1,047	-3,503	40	-2,919	-2,263	-36	-30	-5,208	-257	-3,525	-14,047

¹ Represents the arithmetic difference between input and output.
Note: See Explanatory Note on negative production.
Source: See Explanatory Notes on Data Collection and Estimation.

Table 15. Percent Refinery Yield of Petroleum Products by PAD District, December 1983

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		PAD District V	
	East Coast	Appalachian #1	Total	Appalachian #2	Ill., Ky.	Ind., Wisc., Daks.	Minn., Kans., Mo.	Texas Inland	Texas Gulf Coast	La., Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mt.	Dist. IV	United States
Finished Motor Gasoline ²	49.8	35.7	48.7	55.2	55.8	49.8	56.3	51.9	43.1	45.3	27.0	39.6	44.1	50.8	44.6	47.4
Finished Aviation Gasoline ³	.0	.0	.0	.0	.1	.0	-.1	.1	.2	.3	.0	.0	.2	.1	.2	.1
Liquefied Refinery Gases	3.7	.8	3.5	2.3	3.0	2.1	.8	-6	3.1	3.6	1.6	3.8	2.9	.6	1.5	2.5
Naphtha-Type Jet Fuel	2.4	1.3	2.3	2.7	.4	1.0	1.4	3.5	1.2	.8	2.6	14.5	1.5	2.9	2.3	1.6
Kerosene-Type Jet Fuel	1.4	.0	1.3	-1.1	4.2	2.6	2.6	4.9	6.4	11.0	.0	.8	7.6	3.4	10.4	6.4
Kerosene	.9	3.8	1.1	6.4	1.4	1.5	.4	.0	1.1	2.3	1.1	1.0	1.4	1.2	.2	1.1
Distillate Fuel Oil	23.5	27.2	23.8	23.3	21.7	27.5	28.9	23.0	21.7	19.1	30.0	32.5	21.3	27.8	17.2	21.6
Residual Fuel Oil	9.2	6.4	9.0	4.6	3.3	9.8	1.7	3.7	4.6	6.1	5.7	1.4	7.0	3.0	14.5	7.6
Naphtha < 400 Deg. F. Petro. Feed. Use	1.0	.0	.9	.0	.6	.0	.4	.5	.2	.2	1.0	.0	1.5	.0	.3	1.0
Other Oils > 400 Deg. F. Petro. Feed. Use	.0	.0	.0	.0	.2	.0	.0	.1	.5	4.4	.0	.0	3.5	.0	.9	1.8
Special Naphthas	.0	.6	.1	.0	.5	.0	.8	.5	.2	.7	.0	.0	.5	.0	.1	.4
Lubricants	1.0	13.3	2.0	.0	.8	.0	1.8	.9	.1	2.0	1.4	.0	1.7	.3	.3	1.2
Waxes	.1	2.9	.3	.0	.0	.0	.2	.1	.0	.1	1.1	.0	.1	.1	.1	.1
Petroleum Coke	3.4	.7	3.2	1.5	3.6	4.9	3.3	3.6	2.1	3.0	4.0	.5	3.2	2.2	5.5	3.7
Asphalt and Road Oil	3.3	-1	3.0	5.6	3.6	1.5	3.1	3.3	2.4	.2	15.4	5.0	1.1	5.5	1.6	2.0
Still Gas	4.8	4.0	4.7	3.4	4.2	3.8	3.9	4.1	2.7	4.9	3.9	2.1	4.6	3.8	5.4	4.6
Miscellaneous Products	.5	1.6	.6	.2	.1	.4	.3	.2	.8	.9	.5	.0	.9	.2	.2	.5
Processing Gain(-) or Loss(+) ⁴	-5.1	1.8	-4.5	-4.0	-3.5	-5.0	-5.9	-4.2	.3	-3.4	-3.9	-7	-3.1	-2.1	-5.3	-3.9

1 Based on crude oil input and net reruns of unfinished oils.

2 Based on total finished motor gasoline output plus net output of motor gasoline blending components, minus input of natural gas plant liquids, other hydrocarbons and alcohol.

3 Based on finished aviation gasoline output plus net output of aviation gasoline blending components.

4 Represents the difference between input and production.

Note: Total may not equal sum of components due to independent rounding.

Note: See Explanatory Note on negative production.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 16. Imports of Crude Oil and Petroleum Products by PAD District, December 1983
(Thousand Barrels)

Commodity	Petroleum Administration for Defense Districts					
	I	II	III	IV	V	Total
Crude Oil (Including lease condensate) ^{1 2}	22,502	15,364	55,671	945	5,153	99,635
Natural Gas Liquids						
Natural Gasoline and Isopentane	1,284	5,097	823	574	405	8,184
Plant Condensate	277	0	0	0	0	277
Liquefied Petroleum Gases	122	0	0	121	0	243
Ethane	886	5,097	823	454	405	7,665
Propane	0	1,535	0	0	0	1,535
Butane	327	1,192	0	287	47	1,853
Butane-Propane Mixtures	558	865	0	167	358	1,948
Ethane-Propane Mixtures	0	0	823	0	0	823
	0	1,506	0	0	0	1,506
Other Liquids ¹						
Unfinished Oils ¹	3,287	243	5,499	28	808	9,866
Motor Gasoline Blending Components	2,710	189	5,272	28	0	8,200
Aviation Gasoline Blending Components	577	54	226	0	808	1,666
	0	0	0	0	0	0
Finished Petroleum Products						
Finished Motor Gasoline	32,074	636	2,333	140	1,709	36,893
Finished Leaded Motor Gasoline	6,195	28	(s)	38	474	6,735
Finished Unleaded Motor Gasoline	2,972	20	(s)	37	60	3,088
Finished Aviation Gasoline	3,223	9	0	1	414	3,647
Naphtha-Type Jet Fuel	1	0	0	0	0	1
Kerosene-Type Jet Fuel	0	0	0	0	0	0
Bonded Aircraft Fuel	430	0	27	0	68	524
Other	0	0	0	0	0	0
Kerosene	430	0	27	0	68	524
Distillate Fuel Oil	567	0	12	0	68	579
Bonded Ships Bunkers	6,055	67	301	74	(s)	6,581
Other	0	0	0	0	0	0
Residual Fuel Oil	6,055	67	301	74	85	6,581
Bonded Ships Bunkers	17,763	352	866	28	1,016	20,025
Other	0	0	0	0	0	0
Naphtha < 400 Deg. for Petro. Feed. Use	17,763	352	866	28	1,016	20,025
Other Oils > 400 Deg. for Petro. Feed. Use	4	17	50	0	0	71
Special Naphthas	0	0	0	0	0	0
Lubricants	48	32	611	0	10	700
Waxes	175	10	117	(s)	44	347
Asphalt and Road Oil	28	2	53	0	5	88
Miscellaneous Products	1	3	0	0	2	6
	808	125	296	(s)	6	1,235
Total Imports	59,148	21,340	64,326	1,688	8,075	154,578

¹ Crude oil and unfinished oils are reported by the PAD District in which they are to be processed; all other products are reported by the PAD District of entry.

² Includes crude oil imported for storage in the Strategic Petroleum Reserve.

(s) Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 17. Imports Of Crude Oil and Petroleum Products by Source and PAD District, December 1983
(Thousand Barrels)

Source	Crude Oil 1	LPG	Unfin- ished Oils	Gasoline Blending Compo- nents	Finished Motor Gasoline	Jet Fuel	Kero- sene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Prod- ucts 2	Total Prod- ucts	Total Petro- leum	Total (Daily Average)
All PAD Districts														
Arab OPEC														
Algeria	3,143	0	0	0	0	0	0	0	1,232	0	0	1,232	4,375	141
Iraq	636	0	0	0	0	0	0	0	0	0	0	0	636	21
Kuwait	1,464	0	0	0	0	0	0	0	0	0	0	0	1,464	47
Saudi Arabia	16,675	663	305	0	0	0	0	0	0	0	0	969	17,644	569
United Arab Emirates	795	0	0	0	0	0	0	0	0	327	278	605	1,400	45
Subtotal Arab OPEC	22,713	663	305	0	0	0	0	0	1,232	327	278	2,806	25,519	823
Other OPEC														
Ecuador	1,916	0	0	0	0	0	0	0	358	0	0	358	2,274	73
Gabon	687	0	0	0	0	0	0	0	0	0	0	0	687	22
Indonesia	8,079	0	0	0	276	27	0	33	613	0	0	950	9,029	291
Iran	283	0	0	0	0	0	0	0	0	0	0	0	283	9
Nigeria	10,150	0	0	0	0	0	0	0	60	0	(s)	60	10,209	329
Venezuela	4,958	0	0	0	1,179	0	245	1,680	4,595	0	0	7,700	12,658	408
Subtotal Other OPEC	26,073	0	0	0	1,455	27	245	1,713	5,626	0	(s)	9,067	35,140	1,134
Other														
Angola	2,091	0	0	0	0	0	0	0	297	0	0	297	2,388	77
Australia	0	175	0	0	22	27	0	8	269	0	(s)	501	501	16
Bahamas	0	0	1,807	0	0	50	80	903	329	250	257	3,675	3,675	119
Brazil	0	0	0	24	954	0	0	0	306	0	19	1,303	1,303	42
Canada	9,135	6,003	220	389	553	0	2	932	618	89	426	9,232	18,367	592
Congo	421	0	0	0	0	0	0	0	264	0	0	264	685	22
Egypt	297	0	0	0	0	0	0	0	0	0	21	21	318	10
France	0	0	0	0	0	0	0	0	0	0	46	46	46	1
Mexico	17,978	823	1,743	779	(s)	27	0	377	532	(s)	9	4,290	22,268	718
Netherlands	0	0	0	0	965	0	0	0	215	0	(s)	1,180	1,180	38
Netherlands Antilles	0	0	1,390	0	268	0	0	241	2,802	0	44	4,746	4,746	153
Norway	597	0	0	0	0	0	0	0	0	0	0	0	597	19
Oman	497	0	0	0	0	0	0	0	0	0	0	0	497	16
People's Republic of China	548	0	0	0	0	0	0	0	0	0	(s)	474	1,022	33
Peru	0	0	0	0	271	0	0	0	666	0	0	666	666	21
Puerto Rico	0	0	45	0	493	0	0	208	0	0	150	675	675	22
Romania	0	0	0	0	0	0	0	0	0	0	276	769	769	25
Spain	0	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Trinidad and Tobago	2,739	0	0	0	0	0	0	0	754	0	16	770	3,509	113
Tunisia	522	0	0	0	0	0	0	0	0	0	0	0	522	17
United Kingdom	11,453	0	243	0	0	0	0	0	1,594	0	(s)	1,837	13,290	429
Virgin Islands	0	0	1,378	0	1,645	380	241	2,159	2,585	0	0	8,389	8,389	271
Zaire	479	0	0	0	0	0	0	0	0	0	0	0	479	15
Other Western Hemisphere														
Hemisphere	0	0	0	0	0	0	12	0	725	34	55	825	825	27
Other Eastern Hemisphere	4,092	0	1,069	0	108	14	0	39	1,209	0	670	3,109	7,201	232
Subtotal Other	50,849	7,001	7,895	1,666	5,279	497	334	4,868	13,166	373	1,990	43,070	93,919	3,030
Total Imports	99,635	7,665	8,200	1,666	6,735	524	579	6,581	20,025	700	2,268	54,943	154,578	4,986

See footnotes at end of table.

Table 17. Imports Of Crude Oil and Petroleum Products by Source and PAD District, December 1983
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfin- ished Oils	Gasoline Blending Compo- nents	Finished Motor Gasoline	Jet Fuel	Kero- sene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Prod- ucts 2	Total Prod- ucts	Total Petro- leum	Total (Daily Average)
PAD District I														
Arab OPEC														
Algeria	505	0	0	0	0	0	0	0	1,232	0	0	1,232	1,737	56
Saudi Arabia	3,080	663	305	0	0	0	0	0	0	0	0	969	4,048	131
United Arab Emirates	0	0	0	0	0	0	0	0	0	0	278	278	278	9
Subtotal Arab OPEC	3,585	663	305	0	0	0	0	0	1,232	0	278	2,479	6,064	196
Other OPEC														
Ecuador	0	0	0	0	0	0	0	0	358	0	0	358	358	12
Indonesia	1,594	0	0	0	0	0	0	0	0	0	0	0	1,594	51
Iran	(s)	0	0	0	0	0	0	0	0	0	0	0	(s)	(s)
Nigeria	4,033	0	0	0	0	0	0	0	60	0	(s)	60	4,092	132
Venezuela	1,492	0	0	0	1,179	0	245	1,680	4,242	0	0	7,347	8,839	285
Subtotal Other OPEC	7,120	0	0	0	1,179	0	245	1,680	4,660	0	(s)	7,764	14,884	480
Other														
Angola	1,191	0	0	0	0	0	0	0	297	0	0	297	1,489	48
Australia	0	0	0	0	0	0	0	0	204	0	(s)	204	204	7
Bahamas	0	0	0	0	0	50	80	903	329	0	0	1,361	1,361	44
Brazil	0	0	0	0	954	0	0	306	306	0	1	1,261	1,261	41
Canada	919	222	2	0	419	0	1	792	237	48	142	1,864	2,783	90
Congo	0	0	0	0	0	0	0	0	264	0	0	264	264	9
Egypt	0	0	0	0	0	0	0	0	0	0	21	21	21	1
France	0	0	0	0	0	0	0	0	0	0	45	45	45	1
Mexico	1,000	0	0	577	0	0	0	371	525	0	0	1,473	2,474	80
Netherlands	0	0	0	0	965	0	0	0	215	0	(s)	1,180	1,180	38
Netherlands Antilles	0	0	1,104	0	288	0	0	241	2,802	0	0	4,415	4,415	142
Norway	597	0	0	0	0	0	0	0	0	0	0	0	597	19
People's Republic of China	548	0	0	0	0	0	0	0	0	0	(s)	(s)	548	18
Peru	0	0	0	0	0	0	0	0	666	0	0	666	666	21
Puerto Rico	0	0	45	0	271	0	0	208	0	0	70	595	595	19
Romania	0	0	0	0	493	0	0	0	0	0	276	769	769	25
Trinidad and Tobago	442	0	0	0	0	0	0	0	754	0	0	754	1,195	39
Tunisia	522	0	0	0	0	0	0	0	0	0	0	0	522	17
United Kingdom	4,499	0	243	0	0	0	0	0	1,173	0	(s)	1,416	5,915	191
Virgin Islands	0	0	1,010	0	1,645	380	241	1,859	2,585	0	0	7,721	7,721	249
Zaire	479	0	0	0	0	0	0	0	0	0	0	0	479	15
Other Western														
Hemisphere	0	0	0	0	0	0	0	0	584	0	(s)	584	584	19
Other Eastern Hemisphere	1,600	0	0	0	0	0	0	0	928	0	581	1,510	3,110	100
Subtotal Other	11,797	222	2,405	577	5,016	430	322	4,375	11,871	48	1,138	26,403	38,201	1,232
Total Imports	22,502	886	2,710	577	6,195	430	567	6,055	17,763	48	1,416	36,646	59,148	1,908
PAD District II														
Arab OPEC														
Algeria	425	0	0	0	0	0	0	0	0	0	0	0	425	14
Saudi Arabia	450	0	0	0	0	0	0	0	0	0	0	0	450	15
Subtotal Arab OPEC	875	0	0	0	0	0	0	0	0	0	0	0	875	28

See footnotes at end of table.

Table 17. Imports Of Crude Oil and Petroleum Products by Source and PAD District, December 1983
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfin- ished Oils	Gasoline Blending Compo- nents	Finished Motor Gasoline	Jet Fuel	Kero- sene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Prod- ucts 2	Total Prod- ucts	Total Petro- leum	Total (Daily Average)
PAD District II														
Other OPEC														
Ecuador	222	0	0	0	0	0	0	0	0	0	0	0	222	7
Nigeria	1,042	0	0	0	0	0	0	0	0	0	0	0	1,042	34
Subtotal Other OPEC	1,264	0	0	0	0	0	0	0	0	0	0	0	1,264	41
Other														
Canada	7,110	5,097	189	54	28	0	0	67	352	32	157	5,977	13,087	422
Congo	421	0	0	0	0	0	0	0	0	0	0	0	421	14
France	0	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Mexico	2,756	0	0	0	0	0	0	0	0	0	0	0	2,756	89
Oman	497	0	0	0	0	0	0	0	0	0	0	0	497	16
Trinidad and Tobago	927	0	0	0	0	0	0	0	0	0	0	0	927	30
United Kingdom	1,067	0	0	0	0	0	0	0	0	0	(s)	(s)	1,067	34
Other Eastern Hemisphere	447	0	0	0	0	0	0	0	0	0	(s)	(s)	447	14
Subtotal Other	13,224	5,097	189	54	28	0	0	67	352	32	157	5,977	19,201	619
Total Imports	15,364	5,097	189	54	28	0	0	67	352	32	157	5,977	21,340	688
PAD District III														
Arab OPEC														
Algeria	2,213	0	0	0	0	0	0	0	0	0	0	0	2,213	71
Iraq	636	0	0	0	0	0	0	0	0	0	0	0	636	21
Kuwait	1,464	0	0	0	0	0	0	0	0	0	0	0	1,464	47
Saudi Arabia	13,145	0	0	0	0	0	0	0	0	0	0	0	13,145	424
United Arab Emirates	795	0	0	0	0	0	0	0	0	327	0	327	1,122	36
Subtotal Arab OPEC	18,253	0	0	0	0	0	0	0	0	327	0	327	18,580	599
Other OPEC														
Ecuador	1,694	0	0	0	0	0	0	0	0	0	0	0	1,694	55
Gabon	687	0	0	0	0	0	0	0	0	0	0	0	687	22
Indonesia	1,492	0	0	0	0	0	0	0	372	0	0	372	1,864	60
Iran	283	0	0	0	0	0	0	0	0	0	0	0	283	9
Nigeria	5,075	0	0	0	0	0	0	0	0	0	0	0	5,075	164
Venezuela	3,465	0	0	0	0	0	0	0	353	0	0	353	3,819	123
Subtotal Other OPEC	12,696	0	0	0	0	0	0	0	725	0	0	725	13,422	433
Other														
Angola	900	0	0	0	0	0	0	0	0	0	0	0	900	29
Bahamas	0	0	1,807	0	0	0	0	0	0	250	257	2,313	2,313	75
Brazil	0	0	0	24	0	0	0	0	0	0	18	42	42	1
Canada	(s)	0	0	1	0	0	0	0	0	0	0	1	1	(s)
Egypt	297	0	0	0	0	0	0	0	0	0	0	0	297	10
France	0	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Mexico	14,222	823	1,743	201	(s)	27	0	2	2,798	(s)	2	2,798	17,020	549
Netherlands Antilles	0	0	286	0	0	0	0	0	0	0	0	286	286	9
Puerto Rico	0	0	0	0	0	0	0	0	0	0	80	80	80	3
Spain	0	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)

See footnotes at end of table.

Table 17. Imports Of Crude Oil and Petroleum Products by Source and PAD District, December 1983
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfinished Oils	Gasoline Blending Components	Finished Motor Gasoline	Jet Fuel	Kerosene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Products 2	Total Products	Total Petroleum	Total (Daily Average)
PAD District III														
Other														
Trinidad and Tobago	1,370	0	0	0	0	0	0	0	0	0	16	16	1,386	45
United Kingdom	5,887	0	0	0	0	0	0	0	0	0	0	0	5,887	190
Virgin Islands	0	0	368	0	0	0	0	299	0	0	0	667	667	22
Other Western Hemisphere	0	0	0	0	0	0	12	0	141	34	55	241	241	8
Other Eastern Hemisphere	2,045	0	1,069	0	0	0	0	0	0	0	89	1,158	3,203	103
Subtotal Other	24,721	823	5,272	226	(s)	27	12	301	141	284	516	7,603	32,324	1,043
Total Imports	55,671	823	5,272	226	(s)	27	12	301	866	611	516	8,655	64,326	2,075
PAD District IV														
Other														
Canada	945	454	28	0	38	0	0	74	28	0	121	743	1,688	54
Subtotal Other	945	454	28	0	38	0	0	74	28	0	121	743	1,688	54
Total Imports	945	454	28	0	38	0	0	74	28	0	121	743	1,688	54
PAD District V														
Other OPEC														
Indonesia	4,993	0	0	0	276	27	0	33	241	0	0	578	5,571	180
Subtotal Other OPEC	4,993	0	0	0	276	27	0	33	241	0	0	578	5,571	180
Other														
Australia	0	175	0	0	22	27	0	8	65	0	0	297	297	10
Canada	160	230	0	334	66	0	(s)	0	0	10	6	647	807	26
France	0	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Mexico	0	0	0	0	0	0	0	4	7	0	7	18	18	1
Netherlands Antilles	0	0	0	0	0	0	0	0	0	0	44	44	44	1
People's Republic of China	0	0	0	474	0	0	0	0	0	0	0	474	474	15
United Kingdom	0	0	0	0	0	0	0	0	421	0	0	421	421	14
Other Eastern Hemisphere	0	0	0	0	108	14	0	39	281	0	(s)	442	442	14
Subtotal Other	160	405	0	808	198	40	(s)	51	774	10	58	2,345	2,505	81
Total Imports	5,153	405	0	808	474	68	(s)	85	1,016	10	58	2,922	8,075	260

1 Includes crude oil imported for storage in the Strategic Petroleum Reserve.

2 Includes aviation gasoline, waxes, asphalt, lubricants, natural gasoline, isopentane, plant condensate, naphthas less than 400 degrees F, other oils greater than 400 degrees F and miscellaneous products.

(s) Less than 500 barrels or less than 500 barrels per day.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 18. Exports Of Crude Oil And Petroleum Products By PAD District, December 1983
(Thousand Barrels)

Commodity	Petroleum Administration for Defense Districts					
	I	II	III	IV	V	Total
Crude Oil (including lease condensate) ¹	0	361	0	0	2,576	2,937
Liquefied Petroleum Gases	50	994	942	1	69	2,056
Ethane	(s)	0	0	0	0	(s)
Propane	25	410	388	(s)	28	852
Butane	25	583	554	1	41	1,204
Butane-Propane Mixtures	0	0	0	0	0	0
Finished Motor Gasoline	1	0	784	0	1	786
Naphtha-Type Jet Fuel	0	0	0	0	0	0
Kerosene-Type Jet Fuel	0	0	444	0	14	458
Kerosene	3	(s)	(s)	0	(s)	3
Distillate Fuel Oil	(s)	(s)	1,405	(s)	263	1,669
Residual Fuel Oil	1	0	2,749	0	1,624	4,374
Naphtha < 400 Deg. for Petrochem. Feedstock	43	5	168	1	8	225
Other Oils > 400 Deg. for Petrochem. Feedstock	(s)	86	288	0	1	356
Special Naphthas	4	9	24	(s)	(s)	37
Lubricants	109	12	290	2	38	450
Waxes	4	(s)	20	0	3	27
Petroleum Coke	69	585	3,614	0	2,087	6,355
Asphalt	3	(s)	29	(s)	2	34
Miscellaneous Products	16	2	15	(s)	3	36
Total Product Exports	304	1,673	10,772	4	4,113	16,866
Total Exports	304	2,034	10,772	4	6,689	19,803

¹ Exports of crude oil are prohibited by law. However, some crude oil is exchanged with Canada on a barrel for barrel basis, and crude oil is shipped to U.S. Territories (especially Puerto Rico and the Virgin Islands) to be refined there. The Statistical Tracking Systems count these exchanges and shipments as imports and exports.

(s) Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 19. Exports of Crude Oil and Petroleum Products by Destination, December 1983
(Thousand Barrels)

Destination	Crude Oil 1	LPG	Finished Motor Gasoline	Jet Fuel	Dist. Fuel Oil	Residual Fuel Oil	Special Naphthas	Lubricants	Waxes	Petroleum Coke	Asphalt	Other	Total	Total (Daily Average)
Argentina	0	0	0	0	0	0	0	12	(s)	0	0	172	185	6
Australia	0	2	0	0	0	0	3	1	(s)	158	(s)	6	171	6
Bahamas	0	6	1	0	(s)	0	0	2	0	0	0	(s)	9	(s)
Bahrain	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Belgium & Luxembourg	0	3	0	0	0	0	7	11	(s)	1,860	0	(s)	1,665	54
Brazil	0	0	0	0	0	0	0	(s)	0	63	0	1	83	3
Cameroon	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Canada	361	999	750	0	771	338	9	65	2	766	1	100	4,160	134
Chile	0	0	0	0	0	0	0	8	0	0	0	(s)	8	(s)
China (Taiwan)	0	1	0	0	0	0	(s)	9	(s)	1	(s)	3	14	(s)
Colombia	0	2	0	0	0	0	0	1	5	0	0	1	9	(s)
Costa Rica	0	21	0	0	0	0	1	1	(s)	0	0	1	24	1
Denmark	0	0	0	0	0	0	0	(s)	(s)	0	0	(s)	1	(s)
Dominican Republic	0	52	0	0	0	0	(s)	(s)	(s)	0	28	(s)	81	3
Ecuador	0	37	35	0	80	0	(s)	(s)	(s)	0	1	2	155	5
Egypt	0	8	0	0	0	0	0	(s)	0	0	0	0	10	(s)
El Salvador	0	1	0	0	0	0	0	1	(s)	0	0	2	2	(s)
Finland	0	0	0	0	0	0	0	(s)	(s)	0	0	(s)	2	(s)
France	0	0	0	0	0	0	0	5	(s)	304	0	(s)	312	10
French Pacific Isl	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Ghana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	0	0	0	0	0	0	0	1	0	77	0	1	79	3
Guatemala	0	36	0	0	0	0	0	3	1	0	0	(s)	40	1
Guinea	0	(s)	2	0	0	0	0	(s)	0	(s)	0	0	(s)	(s)
Honduras	0	0	0	0	0	0	0	7	(s)	0	0	0	9	(s)
Hong Kong	0	(s)	0	0	(s)	0	(s)	2	(s)	0	(s)	2	4	(s)
India	0	0	0	0	0	0	(s)	1	0	0	(s)	8	9	(s)
Indonesia	0	0	0	0	0	0	(s)	10	0	86	(s)	7	103	3
Iran	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Israel	0	0	0	0	0	0	(s)	0	0	(s)	0	(s)	1	(s)
Italy	0	(s)	0	0	0	514	3	(s)	(s)	639	0	51	1,208	39
Ivory Coast	0	0	0	0	0	0	0	0	0	0	(s)	0	(s)	(s)
Jamaica	0	30	0	0	0	210	0	12	0	0	0	(s)	252	8
Japan	0	(s)	0	0	177	784	6	21	3	1,086	(s)	96	2,172	70
Jordan	0	0	0	0	0	0	(s)	1	0	0	0	(s)	1	(s)
Korea, Republic of	0	(s)	0	0	0	(s)	1	2	(s)	1	1	10	16	1
Kuwait	0	0	0	0	(s)	0	(s)	2	0	0	0	(s)	3	(s)
Lebanon	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Liberia	0	0	0	0	0	0	0	1	0	0	0	0	1	(s)
Malaysia	0	0	0	0	0	0	0	0	0	0	(s)	0	2	(s)
Mexico	0	434	1	14	1	16	(s)	87	2	17	0	3	576	19
Netherlands	0	85	0	0	(s)	319	0	8	(s)	811	0	23	928	30
Netherlands Antilles	0	(s)	0	0	200	0	0	(s)	0	0	0	(s)	518	17
New Zealand	0	0	0	0	0	0	0	(s)	0	0	0	(s)	1	(s)
Nicaragua	0	0	0	0	0	0	0	2	(s)	0	0	(s)	2	(s)
Nigeria	0	0	0	444	227	0	0	3	(s)	0	0	(s)	674	22
Norway	0	0	0	0	0	0	0	1	(s)	134	0	0	135	4
Pacific Trust Terr.	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Panama	0	14	0	0	27	368	(s)	18	(s)	0	0	(s)	427	14
Peru	0	0	0	0	0	0	(s)	23	(s)	0	(s)	(s)	23	1
Philippines	0	0	0	0	0	0	0	0	(s)	0	0	2	2	(s)
Puerto Rico	0	0	0	0	0	0	0	17	(s)	1	0	14	38	1
Rep. of South Africa	0	5	0	0	(s)	0	(s)	16	8	(s)	(s)	5	30	1

See footnotes at end of table.

Table 19. Exports of Crude Oil and Petroleum Products by Destination, December 1983
(Thousand Barrels)

Destination	Crude Oil ¹	LPG	Finished Motor Gasoline	Jet Fuel	Dist. Fuel Oil	Residual Fuel Oil	Special Naphthas	Lubri-cants	Waxes	Petro-leum Coke	Asphalt	Other	Total	Total (Daily Average)
Saudi Arabia	0	4	(s)	0	0	0	(s)	26	0	0	(s)	5	35	1
Singapore	0	2	0	0	0	500	1	1	(s)	(s)	(s)	2	506	16
Spain	0	3	0	0	186	505	0	(s)	0	387	0	59	1,140	37
Surinam	0	0	0	0	0	0	0	1	0	0	0	(s)	2	(s)
Sweden	0	(s)	0	0	0	0	0	4	(s)	0	0	1	5	(s)
Switzerland	0	(s)	0	0	0	324	0	(s)	(s)	0	0	(s)	324	10
Thailand	0	(s)	0	0	0	0	0	1	(s)	0	0	1	2	(s)
Trinidad and Tobago	0	(s)	0	0	0	0	(s)	3	0	0	0	(s)	3	(s)
Turkey	0	0	0	0	0	0	0	1	(s)	0	0	18	19	1
United Arab Emirates	0	0	0	0	0	0	0	3	0	0	0	1	3	(s)
United Kingdom	0	2	0	0	1	495	(s)	2	(s)	0	(s)	1	554	18
U.S.S.R.	0	0	0	0	0	0	0	35	0	53	0	0	35	1
Uruguay	0	0	0	0	0	0	0	1	0	0	0	(s)	1	(s)
Venezuela	0	87	0	0	0	0	3	1	(s)	0	(s)	1	147	5
Virgin Islands	2,040	57	0	0	0	0	0	(s)	0	0	0	0	2,097	68
West Germany	0	(s)	0	0	0	0	0	2	1	28	0	1	33	1
Yugoslavia	0	0	0	0	0	0	0	(s)	0	28	0	0	28	1
Other	536	161	(s)	0	0	0	(s)	6	1	0	1	17	722	23
Total	2,937	2,056	786	458	1,669	4,374	37	450	27	6,355	34	620	19,803	639

¹ Exports of crude oil are prohibited by law. However, some crude oil is exchanged with

Canada on a barrel for barrel basis, and crude oil is shipped to U.S. Territories (especially Puerto Rico and the Virgin Islands) to be refined there. The Statistical

Tracking Systems count these exchanges and shipments as imports and exports.

(s) Less than 500 barrels or less than 500 barrels per day.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 20. Stocks of Crude Oil and Petroleum Products By PAD District, December 1983
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total		PAD Dist. IV Rocky Mt.	PAD Dist. V West Coast
Crude Oil (incl. lease condensate)																	
Refinery	—	—	13,777	—	—	—	—	13,342	—	—	—	—	—	50,645	1,934	23,344	103,042
Tank Farms and Pipelines	—	—	1,224	—	—	—	—	57,416	—	—	—	—	—	94,504	10,214	29,857	193,215
Leases	—	—	56	—	—	—	—	1,577	—	—	—	—	—	17,233	1,425	1,637	21,928
Strategic Petroleum Reserve¹	—	—	0	—	—	—	—	0	—	—	—	—	—	379,089	0	0	379,089
Alaskan In-Transit	—	—	0	—	—	—	—	0	—	—	—	—	—	0	0	24,991	24,991
Total	—	—	15,057	—	—	—	—	72,335	—	—	—	—	—	541,471	13,573	79,829	722,265
Total Stocks, All Oils (excl. Crude Oil)																	
Refinery	36,873	3,056	39,929	959	41,750	6,627	14,724	64,060	9,413	60,960	43,760	4,840	1,612	120,585	11,562	62,978	299,114
Bulk Terminal	—	—	119,891	—	—	—	—	83,961	—	—	—	—	—	84,696	3,346	23,366	315,260
Pipeline	—	—	28,728	—	—	—	—	34,035	—	—	—	—	—	38,767	2,525	3,845	107,900
Natural Gas Processing Plant	181	49	230	0	206	58	1,239	1,503	1,568	3,816	814	74	226	6,498	225	105	8,561
Total	—	—	188,778	—	—	—	—	183,559	—	—	—	—	—	250,545	17,658	90,294	730,835
Natural Gasoline and Isopentane																	
Refinery	17	0	17	0	51	100	124	275	41	94	160	1	15	311	12	14	629
Bulk Terminal	—	—	17	—	—	—	—	1,460	—	—	—	—	—	2,443	2	1	3,923
Pipeline	—	—	—	0	—	—	—	211	—	—	—	—	—	586	0	5	802
Natural Gas Processing Plant	4	14	18	0	12	13	180	205	278	160	185	23	22	668	47	14	952
Total	—	—	52	—	—	—	—	2,151	—	—	—	—	—	4,008	61	34	6,306
Unfractionated Stream																	
Bulk Terminal	—	—	0	—	—	—	—	2,276	—	—	—	—	—	890	0	0	3,166
Pipeline	—	—	0	—	—	—	—	316	—	—	—	—	—	2,533	466	0	3,315
Natural Gas Processing Plant	0	1	1	0	96	2	685	783	211	1,410	127	1	10	1,759	38	0	2,581
Total	—	—	1	—	—	—	—	3,375	—	—	—	—	—	5,182	504	0	9,062
Plant Condensate																	
Refinery	0	0	0	0	5	0	1	6	3	111	0	74	0	188	0	0	194
Bulk Terminal	—	—	0	—	—	—	—	0	—	—	—	—	—	1	0	0	1
Pipeline	—	—	0	—	—	—	—	0	—	—	—	—	—	273	0	0	273
Natural Gas Processing Plant	0	0	0	0	2	4	5	11	31	34	16	6	0	87	25	0	123
Total	—	—	0	—	—	—	—	17	—	—	—	—	—	549	25	0	591
Liquefied Petroleum Gases																	
Refinery	705	19	724	241	2,000	168	631	3,040	228	420	2,063	28	29	2,768	263	602	7,397
Bulk Terminal	—	—	1,777	—	—	—	—	19,349	—	—	—	—	—	53,414	90	1,968	76,598
Pipeline	—	—	1,928	—	—	—	—	6,405	—	—	—	—	—	3,517	45	0	11,895
Natural Gas Processing Plant	160	34	194	0	94	39	369	502	849	2,210	486	41	193	3,779	107	91	4,673
Total	—	—	4,623	—	—	—	—	29,296	—	—	—	—	—	63,478	505	2,661	100,563

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products By PAD District, December 1983
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II					PAD District III					PAD District IV		United States
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Daks.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total		
Ethane																
Refinery	0	0	0	0	7	16	0	23	0	5	0	0	0	5	0	28
Bulk Terminal	—	—	0	—	—	—	—	773	—	—	—	—	—	4,652	0	5,425
Pipeline	—	—	0	—	—	—	—	1,028	—	—	—	—	—	290	0	1,318
Natural Gas Processing Plant	0	0	0	0	25	0	13	38	2	611	0	0	10	623	1	662
Total	—	—	0	—	—	—	—	1,862	—	—	—	—	—	5,570	1	7,433
Propane for Petrochemical Feedstock Use																
Refinery	48	0	48	0	89	0	0	89	3	4	83	0	0	90	0	227
Total	—	—	48	—	—	—	—	89	—	—	—	—	—	90	0	227
Propane For Other Uses																
Refinery	608	3	611	2	1,127	30	132	1,291	48	67	1,033	5	4	1,157	109	213
Bulk Terminal	—	—	1,510	—	—	—	—	12,672	—	—	—	—	—	21,797	90	607
Pipeline	—	—	1,794	—	—	—	—	3,160	—	—	—	—	—	1,231	10	0
Natural Gas Processing Plant	149	31	180	0	47	22	145	214	423	274	358	16	115	1,186	63	72
Total	—	—	4,095	—	—	—	—	17,337	—	—	—	—	—	25,371	272	892
Butane For Petro. Feed Use																
Refinery	0	0	0	0	0	25	0	25	0	66	0	1	0	67	1	95
Total	—	—	0	—	—	—	—	25	—	—	—	—	—	67	1	95
Butane For Other Uses																
Refinery	48	16	64	217	587	60	332	1,196	106	160	306	9	17	598	97	263
Bulk Terminal	—	—	175	—	—	—	—	1,594	—	—	—	—	—	10,164	0	832
Pipeline	—	—	134	—	—	—	—	1,097	—	—	—	—	—	599	0	0
Natural Gas Processing Plant	9	2	11	0	15	13	52	80	283	965	84	16	43	1,391	42	11
Total	—	—	384	—	—	—	—	3,967	—	—	—	—	—	12,752	139	1,106
Butane-Propane Mixtures For Other Uses																
Refinery	0	0	0	0	2	0	0	2	2	10	10	1	2	25	5	81
Bulk Terminal	—	—	0	—	—	—	—	386	—	—	—	—	—	49	0	383
Pipeline	—	—	0	—	—	—	—	20	—	—	—	—	—	653	0	0
Natural Gas Processing Plant	0	0	0	0	0	0	1	1	3	9	0	2	0	14	0	5
Total	—	—	0	—	—	—	—	409	—	—	—	—	—	741	5	469
Ethane-Propane Mixtures																
Bulk Terminal	—	—	0	—	—	—	—	2,903	—	—	—	—	—	10,793	0	0
Pipeline	—	—	0	—	—	—	—	598	—	—	—	—	—	592	35	0
Natural Gas Processing Plant	0	0	0	0	0	0	145	145	70	0	0	0	17	87	0	0
Total	—	—	0	—	—	—	—	3,646	—	—	—	—	—	11,472	35	0

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products By PAD District, December 1983
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States		
	East Coast	Appa-lachi-an #1	Total	Appa-lachi-an #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total		PAD Dist. V	Rocky West Coast
Isobutane																	
Refinery	1	0	1	22	188	37	167	414	69	108	631	12	6	826	51	43	1,335
Bulk Terminal	—	—	92	—	—	—	—	1,021	—	—	—	—	—	5,959	0	146	7,218
Pipeline	—	—	0	—	—	—	—	502	—	—	—	—	—	152	0	0	654
Natural Gas Processing Plant	2	1	3	0	7	4	13	24	68	351	44	7	8	478	1	3	509
Total	—	—	96	—	—	—	—	1,961	—	—	—	—	—	7,415	52	192	9,716
Other Hydrocarbons and Alcohol																	
Refinery	50	0	50	0	131	0	0	131	1	88	10	0	0	99	0	5	285
Total	—	—	50	—	—	—	—	131	—	—	—	—	—	99	0	5	285
Unfinished Oils																	
Refinery	2,869	127	2,996	43	2,497	110	1,687	4,337	730	6,870	4,979	161	45	12,785	422	4,533	25,073
Naphthalene and Lighter	1,922	27	1,949	0	2,701	3	744	3,448	513	4,852	1,361	30	7	6,763	498	4,042	16,700
Kerosene and Lighter Gas Oils	6,176	292	6,468	118	4,268	258	1,261	5,905	809	9,824	7,179	165	164	18,141	1,190	12,832	44,536
Heavy Gas Oils	1,989	281	2,270	1	2,927	15	1,584	4,527	259	4,832	3,418	29	0	8,538	460	5,394	21,189
Residuum	12,956	727	13,683	162	12,393	386	5,276	18,217	2,311	26,378	16,937	385	-216	46,227	2,570	26,801	107,488
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Motor Gasoline Blending Components																	
Refinery	4,182	115	4,297	33	5,077	914	1,520	7,544	1,584	7,178	5,859	174	266	15,061	2,073	7,215	36,190
Bulk Terminal	—	—	40	—	—	—	—	93	—	—	—	—	—	530	0	65	728
Pipeline	—	—	0	—	—	—	—	2	—	—	—	—	—	0	0	0	2
Total	—	—	4,337	—	—	—	—	7,639	—	—	—	—	—	15,591	2,073	7,280	36,920
Aviation Gasoline Blending Components																	
Refinery	0	0	0	0	73	0	9	82	0	0	202	0	0	202	0	33	317
Total	—	—	0	—	—	—	—	82	—	—	—	—	—	202	0	33	317
Total Finished Motor Gasoline																	
Refinery	5,656	239	5,895	111	7,107	1,435	2,581	11,234	2,169	6,289	4,809	666	238	14,171	2,718	7,402	41,420
Bulk Terminal	—	—	38,586	—	—	—	—	30,420	—	—	—	—	—	11,749	1,707	10,525	92,987
Pipeline	—	—	14,985	—	—	—	—	14,405	—	—	—	—	—	18,608	1,244	1,822	51,064
Natural Gas Processing Plant	17	0	17	0	0	0	0	0	0	0	0	0	0	0	7	0	24
Total	—	—	59,483	—	—	—	—	56,059	—	—	—	—	—	44,528	5,676	19,749	185,495
Finished Leaded Motor Gasoline																	
Refinery	2,281	151	2,432	71	3,284	908	1,566	5,829	1,149	3,374	2,159	382	144	7,208	1,730	3,154	20,353
Bulk Terminal	—	—	17,910	—	—	—	—	15,966	—	—	—	—	—	6,058	1,107	5,304	46,345
Pipeline	—	—	8,904	—	—	—	—	7,820	—	—	—	—	—	9,042	800	807	27,373
Natural Gas Processing Plant	8	0	8	0	0	0	0	0	0	0	0	0	0	0	5	0	13
Total	—	—	29,254	—	—	—	—	29,615	—	—	—	—	—	22,308	3,642	9,265	94,084

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products By PAD District, December 1983
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II					PAD District III					PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mtn.		Dist. IV	PAD Dist. V
Finished Unleaded Motor Gasoline																		
Refinery	3,375	88	3,463	40	3,823	527	1,015	5,405	1,020	2,915	2,650	284	94	6,963	988	4,248	21,067	
Bulk Terminal	—	—	20,676	—	—	—	—	14,454	—	—	—	—	—	5,691	600	5,221	46,642	
Pipeline	—	—	6,081	—	—	—	—	6,585	—	—	—	—	—	9,566	444	1,015	23,691	
Natural Gas Processing Plant	9	0	9	0	0	0	0	0	0	0	0	0	0	0	2	0	11	
Total	—	—	30,229	—	—	—	—	26,444	—	—	—	—	—	22,220	2,034	10,484	91,411	
Finished Aviation Gasoline																		
Refinery	45	0	45	0	124	0	11	135	89	303	132	0	0	524	42	170	916	
Bulk Terminal	—	—	487	—	—	—	—	385	—	—	—	—	—	137	19	272	1,300	
Pipeline	—	—	0	—	—	—	—	13	—	—	—	—	—	20	0	0	33	
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	42	0	0	0	0	42	0	0	42	
Total	—	—	532	—	—	—	—	533	—	—	—	—	—	723	61	442	2,291	
Naphtha-Type Jet Fuel																		
Refinery	281	30	311	0	514	30	164	708	225	586	246	167	224	1,448	201	701	3,369	
Bulk Terminal	—	—	1	—	—	—	—	712	—	—	—	—	—	195	12	562	1,482	
Pipeline	—	—	159	—	—	—	—	239	—	—	—	—	—	508	80	376	1,362	
Total	—	—	471	—	—	—	—	1,659	—	—	—	—	—	2,151	293	1,639	6,213	
Kerosene-Type Jet Fuel																		
Refinery	1,154	0	1,154	37	959	24	97	1,117	171	2,642	1,847	7	55	4,722	231	3,166	10,390	
Bulk Terminal	—	—	4,699	—	—	—	—	3,106	—	—	—	—	—	1,824	201	1,973	11,803	
Pipeline	—	—	3,228	—	—	—	—	2,562	—	—	—	—	—	3,641	108	636	10,175	
Total	—	—	9,081	—	—	—	—	6,785	—	—	—	—	—	10,187	540	5,775	32,368	
Kerosene																		
Refinery	208	90	298	0	470	32	289	791	35	535	716	22	48	1,356	7	209	2,661	
Bulk Terminal	—	—	2,882	—	—	—	—	508	—	—	—	—	—	500	21	33	3,944	
Pipeline	—	—	268	—	—	—	—	244	—	—	—	—	—	730	0	10	1,252	
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	2	0	0	0	1	3	0	0	3	
Total	—	—	3,448	—	—	—	—	1,543	—	—	—	—	—	2,589	28	252	7,860	
Distillate Fuel Oils																		
Refinery	5,616	479	6,095	37	6,864	1,490	2,500	10,891	1,012	6,249	3,650	1,267	226	12,404	1,684	5,182	36,236	
Bulk Terminal	—	—	43,563	—	—	—	—	19,760	—	—	—	—	—	7,214	1,071	5,080	76,688	
Pipeline	—	—	8,160	—	—	—	—	9,606	—	—	—	—	—	8,143	582	987	27,478	
Total	—	—	57,818	—	—	—	—	40,257	—	—	—	—	—	27,761	3,317	11,249	140,402	
Residual Fuel Oils																		
Refinery	2,174	79	2,253	31	1,560	779	198	2,568	349	3,403	2,570	136	56	6,514	467	6,477	18,279	
Bulk Terminal	—	—	22,739	—	—	—	—	1,385	—	—	—	—	—	4,962	0	1,793	30,819	
Pipeline	—	—	0	—	—	—	—	0	—	—	—	—	—	1	0	9	10	
Total	—	—	24,992	—	—	—	—	3,953	—	—	—	—	—	11,477	467	8,219	49,108	

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products By PAD District, December 1983
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States			
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total		Rocky Mt.	Dist. V	PAD Dist. West Coast
Naphtha < 400 Deg. Petro. Feedstock																		
Refinery	54	0	54	0	177	0	54	231	119	772	283	75	0	1,249	0	178	1,712	
Total	54	0	54	0	177	0	54	231	119	772	283	75	0	1,249	0	178	1,712	
Other Oils > 400 Deg. Petro. Feedstock																		
Refinery	2	0	2	0	24	0	0	24	255	775	298	0	0	1,328	3	400	1,757	
Total	2	0	2	0	24	0	0	24	255	775	298	0	0	1,328	3	400	1,757	
Special Naphthas																		
Refinery	30	50	80	0	236	0	176	412	13	1,072	26	180	0	1,291	12	189	1,984	
Bulk Terminal	—	—	807	—	—	—	—	192	—	—	—	—	—	58	0	42	1,099	
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	70	0	0	0	0	70	0	0	70	
Total	—	—	887	—	—	—	—	604	—	—	—	—	—	1,419	12	231	3,153	
Lubricants																		
Refinery	1,114	1,026	2,140	0	676	0	260	936	38	2,862	1,348	490	0	4,738	75	518	8,407	
Bulk Terminal	—	—	1,184	—	—	—	—	1,165	—	—	—	—	—	275	155	889	3,668	
Total	—	—	3,324	—	—	—	—	2,101	—	—	—	—	—	5,013	230	1,407	12,075	
Waxes																		
Refinery	16	138	154	0	47	0	38	85	18	249	146	74	0	487	0	51	777	
Total	—	—	154	—	—	—	—	85	—	—	—	—	—	487	0	51	777	
Petroleum Coke																		
Refinery	1,082	0	1,082	0	437	274	104	815	0	165	1,065	177	0	1,407	130	2,047	5,481	
Total	1,082	0	1,082	0	437	274	104	815	0	165	1,065	177	0	1,407	130	2,047	5,481	
Asphalt and Road Oil																		
Refinery	1,379	23	1,402	306	2,773	980	681	4,740	675	347	1,174	862	239	3,297	1,085	1,480	12,004	
Bulk Terminal	—	—	3,002	—	—	—	—	3,126	—	—	—	—	—	464	68	128	6,788	
Total	—	—	4,404	—	—	—	—	7,866	—	—	—	—	—	3,761	1,153	1,608	18,792	
Miscellaneous Products																		
Refinery	152	41	193	1	52	15	10	78	77	442	219	55	0	793	9	138	1,211	
Bulk Terminal	—	—	107	—	—	—	—	24	—	—	—	—	—	40	0	95	266	
Pipeline	—	—	0	—	—	—	—	32	—	—	—	—	—	207	0	0	239	
Natural Gas Processing Plant	0	0	0	0	2	0	0	2	85	2	0	3	0	90	1	0	93	
Total	—	—	300	—	—	—	—	136	—	—	—	—	—	1,130	10	233	1,809	
Total Stocks, All Oils																		
	—	—	203,835	—	—	—	—	255,894	—	—	—	—	—	792,017	31,231	170,123	1,453,100	

¹ Includes 33,879 thousand barrels of domestic crude oil.

Source: See Explanatory Notes on Data Collection and Estimation.

— Not Applicable.

Table 21. Movements of Crude Oil and Petroleum Products by Pipeline, Tanker, and Barge Between PAD Districts, December 1983
(Thousand Barrels)

Commodity	From I to					From II to					From III to					From IV to					From V to				
	II	III	V	I		I	III	IV	V		I	II	IV	V		II	III	V	I		I	II	III	IV	
Crude Oil (Tanker and Barge only)	0	0	0	0	0	0	0	0	0	0	421	1,501	0	0	0	0	0	0	0	0	832	860	15,279	0	0
Petroleum Products	8,479	287	0	2,870	0	101	92,050	26,032	0	1,899	1,515	699	1,033	0	0	0	0	0	0	0	0	0	10	0	0
Natural Gasoline and Isopentane	0	0	0	0	0	0	0	413	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
Unfractionated Stream	0	0	0	0	0	0	0	1,034	0	0	0	460	699	0	0	0	0	0	0	0	0	0	0	0	0
Plant Condensate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liquefied Petroleum Gases	0	0	0	931	0	357	2,935	6,662	0	0	2,935	89	0	0	0	272	0	0	0	0	0	0	0	0	0
Unfinished Oils	0	0	0	0	0	0	89	313	89	0	80	1,204	0	0	0	0	0	0	0	0	0	0	0	0	0
Motor Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finished Motor Gasoline	5,960	0	0	1,328	0	1,374	52,656	9,460	0	1,099	438	0	779	0	0	0	0	0	0	0	0	0	0	0	0
Finished Leaded Motor Gasoline	3,093	0	0	464	0	674	20,255	4,387	0	592	276	0	493	0	0	0	0	0	0	0	0	0	0	0	0
Finished Unleaded Motor Gasoline	2,867	0	0	864	0	700	32,401	5,073	0	507	162	0	286	0	0	0	0	0	0	0	0	0	0	0	0
Finished Aviation Gasoline	15	0	0	0	0	18	283	28	0	0	664	12	0	0	0	69	0	0	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel	182	0	0	0	0	59	664	12	0	246	69	0	52	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene-Type Jet Fuel	284	0	0	64	0	567	10,828	2,250	0	102	3	0	45	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene	80	0	0	25	0	0	1,064	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distillate Fuel Oil	1,892	0	0	212	0	222	20,970	4,233	0	366	263	0	157	0	0	0	0	0	0	0	0	0	0	0	0
Residual Fuel Oil	0	197	0	127	0	1	967	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Naphtha and Other Oils for Petro. Feedstock	0	0	0	0	0	0	138	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Special Naphthas	0	0	0	0	0	0	222	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lubricants	0	79	0	50	0	10	334	354	0	86	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0
Waxes	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asphalt and Road Oil	0	0	0	53	0	0	159	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Products	66	11	0	80	23	0	434	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total All Products	8,479	287	0	2,870	5,347	2,538	101	92,471	27,533	0	1,899	1,515	699	1,033	832	860	15,289	0	0	0	0	0	0	0	0

Source: See Explanatory Notes on Data Collection and Estimation.

Table 22. Movements of Petroleum Products by Pipeline between PAD Districts, December 1983
(Thousand Barrels)

Commodity	From I to			From II to			From III to			From IV to			From V to		
	II	III		I	III	IV	I	II	IV	V	II	III	V	III	IV
Natural Gasoline and Isopentane	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0
Unfractionated Stream	0	0	0	0	0	543	0	0	0	0	0	460	0	0	0
Plant Condensate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liquefied Petroleum Gases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Motor Gasoline Blending Components	0	0	0	931	2,614	357	2,752	6,619	0	0	0	272	0	0	0
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	1,204	0	0	0	0	0	0	0
Finished Motor Gasoline	4,602	0	0	1,328	1,660	1,374	41,096	8,740	0	1,099	0	438	0	0	0
Finished Leaded Motor Gasoline	2,384	0	0	464	868	674	15,818	4,095	0	592	0	276	0	493	0
Finished Unleaded Motor Gasoline	2,218	0	0	864	792	700	25,278	4,645	0	507	0	162	0	286	0
Finished Aviation Gasoline	15	0	0	0	0	18	59	18	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel	0	0	0	0	0	59	388	0	0	246	0	69	0	52	0
Kerosene-Type Jet Fuel	195	0	0	64	0	567	7,614	2,030	0	102	3	0	0	45	0
Kerosene	67	0	0	25	0	0	861	72	0	0	0	0	0	0	0
Distillate Fuel Oil	1,417	0	0	176	419	222	16,553	3,894	0	366	0	263	0	157	0
Residual Fuel Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Products	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0
Total	6,296	0	0	2,549	5,295	2,538	69,423	24,024	0	1,813	1,515	699	1,033	0	0

Source: See Explanatory Notes on Data Collection and Estimation.

Table 23. Movements of Crude Oil and Petroleum Products by Tanker and Barge Between PAD Districts, December 1983
(Thousand Barrels)

Commodity	From I to			From II to			From III to					From V to			
	II	III	V	I	III	V	I	New Eng	Cent Atl	Low Atl	II	V	I	II	III
Crude Oil	0	0	0	0	0	0	0	421	0	421	0	1,501	0	832	860
15,279	2,183	287	0	321	52	101	22,627	2,282	4,159	16,186	2,008	86	0	0	0
Petroleum Products	0	0	0	0	0	0	183	0	0	183	43	0	0	0	10
Liquefied Petroleum Gases	0	0	0	0	0	89	313	0	266	47	89	0	0	0	0
Unfinished Oils	0	0	0	0	0	0	80	16	0	64	0	0	0	0	0
Motor Gasoline Blending Components	1,358	0	0	0	18	0	11,560	634	727	10,199	720	0	0	0	0
Finished Motor Gasoline	0	0	0	0	12	224	20	102	102	10	0	0	0	0	0
Finished Aviation Gasoline	182	0	0	0	0	0	276	0	0	276	12	0	0	0	0
Naphtha-Type Jet Fuel	89	0	0	0	0	0	3,214	329	624	2,261	220	0	0	0	0
Kerosene-Type Jet Fuel	13	0	0	0	0	0	203	20	99	84	0	0	0	0	0
Kerosene	475	0	0	36	0	0	4,317	1,211	918	2,188	339	0	0	0	0
Distillate Fuel Oil	0	197	0	127	1	0	967	9	491	467	0	0	0	0	0
Residual Fuel Oil	0	0	0	0	0	0	138	0	138	0	21	0	0	0	0
Naphtha and Other Oils for Petro. Feed. Use	0	0	0	0	0	0	222	31	139	52	71	0	0	0	0
Special Naphthas	0	79	0	50	10	0	334	0	262	72	354	86	0	0	10
Lubricants	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0
Waxes	0	0	0	0	0	0	159	0	159	43	0	0	0	0	0
Asphalt and Road Oil	66	11	0	55	23	0	434	12	390	32	86	0	0	0	0
Miscellaneous Products	2,183	287	0	321	52	101	23,048	2,282	4,580	16,186	3,509	86	832	860	15,289
Total															

Source: See Explanatory Notes on Data Collection and Estimation.

Table 24. Net Movements of Crude Oil and Petroleum Products by Pipeline, Tanker and Barge Between PAD Districts, December 1983
(Thousand Barrels)

Commodity	PAD District I			PAD District II			PAD District III			PAD District IV			PAD District V		
	Receipts into PAD I	Ship- ments from PAD I	Net Receipts PAD I	Receipts into PAD II	Ship- ments from PAD II	Net Receipts PAD II	Receipts into PAD III	Ship- ments from PAD III	Net Receipts PAD III	Receipts into PAD IV	Ship- ments from PAD IV	Net Receipts PAD IV	Receipts into PAD V	Ship- ments from PAD V	Net Receipts PAD V
Crude Oil (Tanker and Barge only)	1,253	0	1,253	2,361	0	2,361	15,279	1,922	13,357	0	0	0	0	16,971	-16,971
Petroleum Products	94,920	8,766	86,154	36,026	10,856	25,170	6,343	119,981	-113,638	2,538	3,247	-709	3,033	10	3,023
Natural Gasoline	0	0	0	423	0	423	0	413	-413	0	10	-10	0	0	0
Unfractionated Stream	0	0	0	1,494	543	951	1,242	1,034	208	0	1,159	-1,159	0	0	0
Plant Condensate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liquefied Petroleum Gases	3,866	0	3,866	6,934	3,902	3,032	2,614	9,597	-6,983	357	272	85	0	0	0
Unfinished Oils	313	0	313	89	0	89	0	402	-402	0	0	0	89	0	89
Motor Gasoline Blending Components	80	0	80	1,204	0	1,204	0	1,284	-1,284	0	0	0	0	0	0
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finished Motor Gasoline	53,984	5,960	48,024	15,858	4,380	11,478	1,678	63,215	-61,537	1,374	1,217	157	1,878	0	1,878
Finished Leaded Motor Gasoline	20,719	3,083	17,636	7,756	2,024	5,732	866	25,234	-24,348	674	769	-95	1,085	0	1,085
Finished Unleaded Motor Gasoline	33,265	2,867	30,398	8,102	2,356	5,746	792	37,981	-37,189	700	448	252	793	0	793
Finished Aviation Gasoline	283	15	268	43	30	13	0	311	-311	18	0	18	12	0	12
Naphtha-Type Jet Fuel	664	182	482	263	59	204	59	922	-863	0	121	-121	298	0	298
Kerosene-Type Jet Fuel	10,892	284	10,608	2,537	631	1,906	0	13,180	-13,180	567	48	519	147	0	147
Kerosene	1,089	80	1,009	152	25	127	0	1,136	-1,136	0	0	0	0	0	0
Distillate Fuel Oil	21,182	1,892	19,290	6,388	853	5,535	419	25,569	-25,150	222	420	-198	523	0	523
Residual Fuel Oil	1,084	197	887	0	128	-128	198	967	-769	0	0	0	0	0	0
Naphtha and Other Oils for Petro.															
Feedstock Use	138	0	138	21	0	21	0	159	-159	0	0	0	0	0	0
Special Naphthas	222	0	222	71	0	71	0	293	-293	0	0	0	0	0	0
Lubricants	384	79	305	354	60	294	99	774	-675	0	0	0	86	10	76
Waxes	3	0	3	0	0	0	0	3	-3	0	0	0	0	0	0
Asphalt and Road Oil	212	0	212	43	53	-10	0	202	-202	0	0	0	0	0	0
Miscellaneous Products	514	77	437	152	103	49	34	520	-486	0	0	0	0	0	0
Total All Products	96,173	8,766	87,407	38,387	10,856	27,531	21,622	121,903	-100,281	2,538	3,247	-709	3,033	16,981	-13,948

Source: See Explanatory Notes on Data Collection and Estimation.

Table 25. Production of Residual Fuel Oil By Sulfur Content, December 1983
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III			PAD District IV			United States
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Daks.	Okl., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La., Ark., Gulf Coast	No. La., Ark.	New Mexico	Total	
Residual Fuel Oil	2,912	169	3,081	82	1,920	857	300	3,059	661	7,094	3,500	285	36	11,576	375
0.00 to 0.30% Sulfur	380	45	425	0	84	0	61	145	57	213	208	71	6	555	82
0.31 to 1.00% Sulfur	1,606	-1	1,605	24	498	0	136	658	401	2,377	1,048	131	0	3,957	92
Greater Than 1.00% Sulfur	926	125	1,051	58	1,238	857	103	2,256	203	4,504	2,244	83	30	7,064	201

Source: See Explanatory Notes on Data Collection and Estimation.

Table 26. Stocks of Residual Fuel Oil By Sulfur Content, December 1983
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III			PAD District IV			United States
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Daks.	Okl., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La., Ark., Gulf Coast	No. La., Ark.	New Mexico	Total	
Residual Fuel Oil -- 0.00 to 0.30% Sulfur	382	34	416	0	149	0	52	201	60	143	241	18	3	485	149
Refinery	—	—	—	—	—	—	—	26	—	—	—	—	—	21	0
Bulk Terminal	—	—	6,285	—	—	—	—	227	—	—	—	—	—	486	149
Total	—	—	6,701	—	—	—	—	—	—	—	—	—	—	—	7,942
Residual Fuel Oil -- 0.31 to 1.00% Sulfur	1,046	1	1,047	24	418	0	94	536	113	1,133	797	46	0	2,089	101
Refinery	—	—	7,344	—	—	—	—	493	—	—	—	—	—	2,876	0
Bulk Terminal	—	—	8,391	—	—	—	—	1,029	—	—	—	—	—	4,965	101
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16,851
Residual Fuel Oil -- Greater than 1.00% Sulfur	746	44	790	7	993	779	52	1,831	176	2,127	1,532	72	53	3,960	217
Refinery	—	—	9,110	—	—	—	—	866	—	—	—	—	—	2,065	0
Bulk Terminal	—	—	8,900	—	—	—	—	2,697	—	—	—	—	—	6,025	217
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24,305

Source: See Explanatory Notes on Data Collection and Estimation.

— Not Applicable

Table 27. Movements of Residual Fuel Oil by Tanker and Barge Between PAD Districts, By Sulfur Content, December 1983
(Thousand Barrels)

Commodity	From I to			From II to			From III to					From V to		
	II	III	V	I	III	V	New Eng	Cent Atl	Low Atl	II	V	I	II	III
Residual Fuel Oil	0	197	0	127	1	0	967	9	491	467	0	0	0	0
0.00 to 0.30% Sulfur	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.31 to 1.00% Sulfur	0	0	0	0	0	0	154	0	0	154	0	0	0	0
Greater Than 1.00% Sulfur	0	197	0	127	1	0	813	9	491	313	0	0	0	0

Source: See Explanatory Notes on Data Collection and Estimation.

Table 28. Imports of Residual Fuel Oil by Sulfur Content by Country of Origin, December 1983
(Thousand Barrels)

Country	Residual Fuel Oil			
	0.00 to 0.30%	0.31 to 1.00%	Greater Than 1.00%	Total
Arab OPEC				
Algeria	1,112	121	0	1,232
Iraq	0	0	0	0
Kuwait	0	0	0	0
Libya	0	0	0	0
Qatar	0	0	0	0
Saudi Arabia	0	0	0	0
United Arab Emirates	0	0	0	0
Subtotal Arab OPEC	1,112	121	0	1,232
Other OPEC				
Ecuador	0	0	358	358
Gabon	0	0	0	0
Indonesia	372	233	8	613
Iran	0	0	0	0
Nigeria	60	0	0	60
Venezuela	2,154	327	2,114	4,595
Subtotal Other OPEC	2,586	560	2,480	5,626
Other				
Angola	0	297	0	297
Australia	204	65	0	269
Bahamas	260	0	69	329
Bolivia	0	0	0	0
Brazil	0	306	0	306
Brunei	0	0	0	0
Canada	191	198	228	618
Congo	264	0	0	264
Egypt	0	0	0	0
France	0	0	0	0
Ghana	0	0	0	0
Liberia	0	0	0	0
Malaysia	0	0	0	0
Mexico	7	0	525	532
Netherlands	215	0	0	215
Netherlands Antilles	385	0	2,417	2,802
Norway	0	0	0	0
Oman	0	0	0	0
People's Republic of China	0	0	0	0
Peru	163	251	252	666
Puerto Rico	0	0	0	0
Romania	0	0	0	0
Spain	0	0	0	0
Syria	0	0	0	0
Trinidad	0	0	754	754
Tunisia	0	0	0	0
United Kingdom	1,292	302	0	1,594
Virgin Islands	586	422	1,477	2,585
Yugoslavia	0	0	0	0
Zaire	0	0	0	0
Other Western Hemisphere	543	0	183	725
Other Eastern Hemisphere	145	1,033	30	1,209
Subtotal Other	4,356	2,875	5,935	13,166
Total Imports	8,053	3,556	8,415	20,025

(a) Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

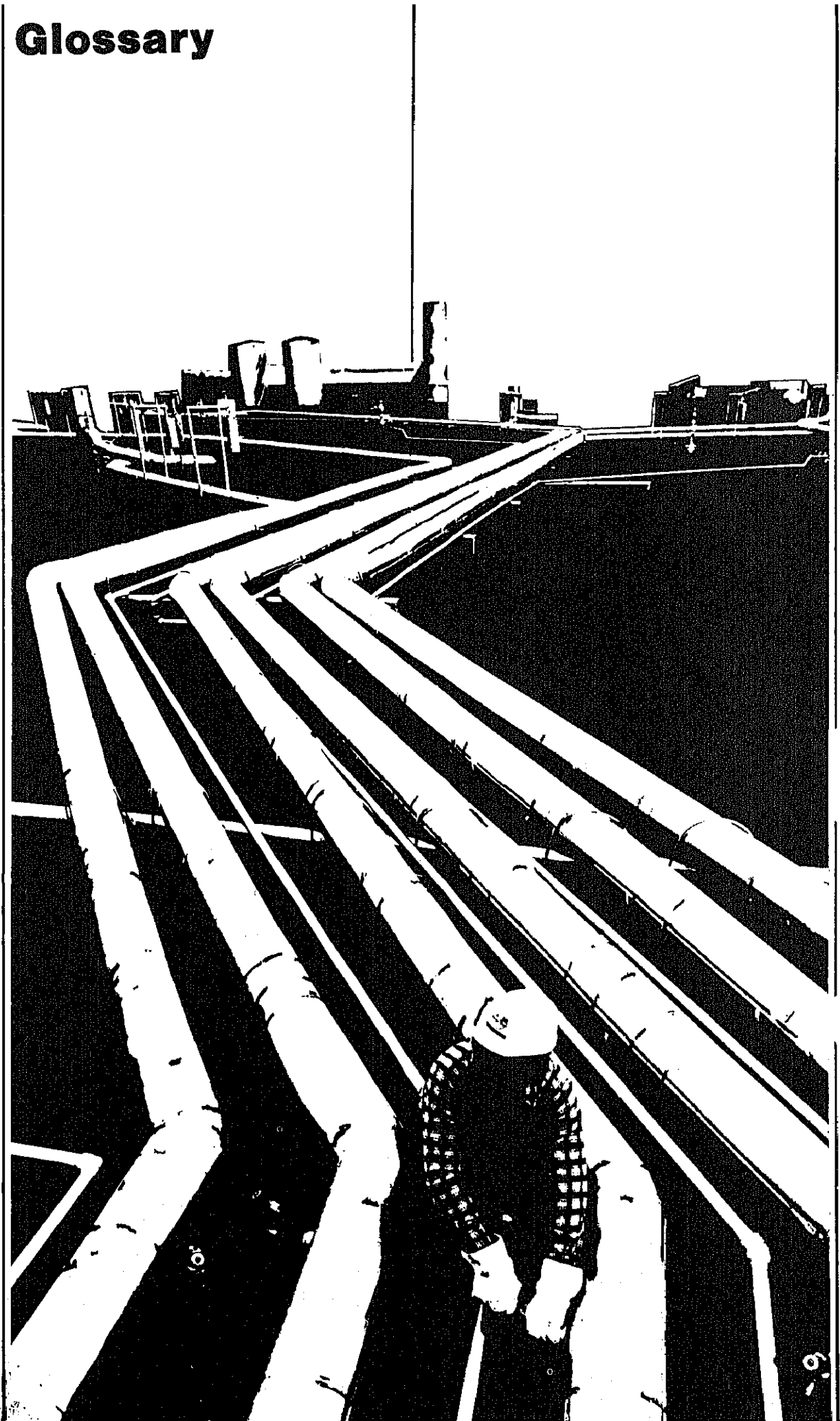
Source: See Explanatory Notes on Data Collection and Estimation.

Table 29. Imports of Residual Fuel Oil by Sulfur Content by State of Entry, December 1983
(Thousand Barrels)

State	Residual Fuel Oil			
	0.00 to 0.30%	0.31 to 1.00%	Greater Than 1.00%	Total
PAD District I	6,773	2,673	8,316	17,763
Connecticut	363	0	0	363
Delaware	146	0	234	379
Florida	0	0	511	511
Maine	0	0	643	643
Maryland	577	128	334	1,039
Massachusetts	200	321	1,786	2,306
New Hampshire	0	0	265	265
New Jersey	443	0	948	1,391
New York	4,719	2,024	1,730	8,474
North Carolina	138	0	0	138
Pennsylvania	0	201	50	251
Rhode Island	185	0	183	368
South Carolina	0	0	310	310
Vermont	3	0	0	3
Virginia	0	0	1,321	1,321
PAD District II	153	152	46	352
Illinois	50	137	0	187
Michigan	90	16	42	148
Minnesota	12	0	0	12
North Dakota	1	0	4	5
PAD District III	539	327	0	866
Texas	539	327	0	866
PAD District IV	14	0	15	28
Montana	14	0	15	28
PAD District V	574	404	38	1,016
Alaska	421	0	0	421
California	151	0	0	151
Hawaii	1	404	38	443
All PAD Districts	8,053	3,556	8,415	20,025

Note: Total may not equal sum of components due to independent rounding.
Source: See Explanatory Notes on Data Collection and Estimation.

Glossary



Definitions of Petroleum Products and Other Terms

Alcohol. The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group; $\text{CH}-(\text{CH})_n-\text{OH}$. *Alcohol* includes methanol and ethanol.

Alkylation. A refinery process for chemically combining isoparaffin with olefin hydrocarbons. The product, alkylate, has high octane value and is blended with motor and aviation gasoline to improve the antiknock value of the fuel.

API Gravity. An arbitrary scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API; it may be calculated in terms of the following formula:

$$\text{Deg API} = \frac{141.5}{\text{sp gr } 60\text{F}/60\text{F}} - 131.5$$

Aromatics. Hydrocarbons characterized by unsaturated ring structures of carbon atoms. Commercial petroleum aromatics are benzene, toluene, and xylene.

Asphalt. A dark-brown-to-black cement-like material, containing bitumens as the predominant constituents, obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. The conversion factor for asphalt is 5.5 barrels of 42 U.S. gallons per short-ton.

ASTM. The acronym for the American Society for Testing and Materials.

Aviation Gasoline Blending Components. Finished components in the gasoline range which will be used for blending or compounding into finished aviation gasoline.

Aviation Gasoline, Finished. All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910 and Military Specification MIL-G-5572. Excludes blending components which will be used in blending or compounding into finished aviation gasoline.

Barrel. A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons. This measure is used in most statistical reports. Factors for converting petroleum coke, asphalt and wax to barrels are given in the definitions for these products.

Barrels per Calendar Day. The maximum number of barrels of input that can be processed in a twenty-four hour period after making allowances for the following limitations: downstream limitations, environmental constraints, types and grades of inputs, planned and unplanned downtime, and types and grades of products.

Barrels Per Stream Day. The amount a unit can process running at full capacity under optimal crude and product slate conditions.

Bi-metallic. A term used to describe a type of catalyst. A catalytic process utilizing a catalyst comprised of two metals (e.g., platinum, rhenium).

Butane. A normally gaseous paraffinic hydrocarbon, C_4H_{10} . It is extracted from natural gas or refinery gas streams. Butane is covered by ASTM Specification D1835 and Gas Processors Association Specification for commercial butane.

Isobutane. A saturated straight-chain hydrocarbon of butane. It is a colorless paraffinic gas that boils at a temperature of 10.9 degrees F. This classification includes mixtures of gases that contain 80 percent liquid volume or more isobutane. It is extracted from natural gas and refinery gas streams.

Normal Butane. A saturated straight-chain hydrocarbon of butane. It is a colorless paraffinic gas that boils at a temperature of 31.1 degrees F. This classification includes mixtures of gases that contain 80 percent or more normal butane.

Other Butanes. All butanes not included as normal butane or isobutane.

Butane-Propane Mixtures. Mixtures consisting exclusively of butane and propane that conform to ASTM Specification D1835 and Gas Processors Association Specification for commercial butane-propane mixtures. They are extracted from natural gas and refinery gas streams.

Butylene. An olefinic hydrocarbon, C_4H_8 , recovered from refinery processes.

Catalytic Cracking. The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil.

Catalytic Hydrocracking. A refining process for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel and/or high grade fuel oil. Hydrocracking is an efficient, relatively low temperature process using hydrogen and a catalyst.

Catalytic Hydrotreating. A process for treating petroleum fractions (e.g., distillate fuel oil and residual fuel oil) and unfinished oils (e.g., naphthas, reformer feeds and heavy gas oil) in the presence of catalysts and substantial quantities of hydrogen to upgrade their quality.

Catalytic Reforming. The use of controlled heat and pressure with catalysts to effect the rearrangement of certain hydrocarbon molecules without altering their composition appreciably; the conversion of low-octane

gasoline fractions into higher octane stocks suitable for blending into finished gasoline; also the conversion of naphthas to obtain a more volatile product of higher octane number.

Conventional. A term used to describe a type of catalyst. A catalytic process utilizing a catalyst comprised of a metal and a non-metal (e.g., platinum, alumina).

Coal. A generic term applied to carbonaceous rocks that were formed by the partial or complete decomposition of vegetation. These stratified carbonaceous rocks are either solid or brittle and are highly combustible. Includes lignite, bituminous coal, and anthracite coal which conform to ASTM Specification D388.

Crude Distillation. The refining process of separating crude oil components by heating and subsequent condensing of the fractions by cooling.

Crude Oil (Including Lease Condensate). A mixture of hydrocarbons that existed in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite and oil shale. Drip gas is also included, but topped crude oil (residual oil) and other unfinished oils are excluded. Liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded where identifiable. Crude oil is considered as either domestic or foreign according to the following:

Domestic. Crude oil produced in the United States or from its outer continental shelf as defined in 43 U.S.C. 1331.

Foreign. Crude oil produced outside the United States.

Delayed Coking. A process to produce low Conradson carbon gas for catalytic cracking feedstock and for gasoline.

Distillate Fuel Oil. A general classification for one of the petroleum fractions produced in conventional distillation operations. It is used primarily for space heating, on-and-off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation. Included are products known as No. 1, No. 2, and No. 4 fuel oils; No. 1, No. 2, and No. 4 diesel fuel.

No. 1 Fuel Oil. A light distillate fuel oil intended for use in vaporizing pot-type burners. ASTM Specification D396 specifies for this grade maximum distillation temperatures of 420 degrees F. at the 10-percent point and 550 degrees F. at the 90-percent point, and kinematic viscosities between 1.4 and 2.2 centistokes at 100 degrees F.

No. 2 Fuel Oil. A distillate fuel oil for use in atomizing-type burners for domestic heating or for moderate capacity commercial-industrial burner units. ASTM

Specification D396 specifies for this grade distillation temperatures at the 90-percent point between 540 degrees and 640 degrees F., and kinematic viscosities between 2.0 and 3.6 centistokes at 100 degrees F.

No. 1 and No. 2 Diesel Fuel Oils. Distillate fuel oils used in compression-ignition engines, as given by ASTM Specification D975:

No. 1-D. A volatile distillate fuel oil with a boiling range between 300-575 degrees F. and used in high-speed diesel engines generally operated under wide variations in speed and load. Includes type C-B diesel fuel used for city buses and similar operations. Properties are defined in ASTM Specifications D975.

No. 2-D. A gas oil type distillate of lower volatility with distillation temperatures at the 90-percent point between 540-640 degrees F. for use in high-speed diesel engines generally operated under uniform speed and load conditions. Includes Type R-R diesel fuel used for railroad locomotive engines, and Type T-T for diesel-engine trucks. Properties are defined in ASTM Specification D975.

No. 4 Fuel Oil. A fuel oil for commercial burner installations not equipped with preheating facilities. It is used extensively in industrial plants. This grade is a blend of distillate fuel oil and residual fuel oil stocks that conforms to ASTM Specification D396 or Federal Specification VV-F-815C; its kinematic viscosity is between 5.8 and 26.4 centistokes at 100 degrees F. Also included is No. 4-D, a fuel oil for low- and medium-speed diesel engines that conforms to ASTM Specification D975.

Eastern Hemisphere. That half of the earth east of the Atlantic Ocean which includes Europe, Asia, Africa, and Australia. The Hawaiian Foreign Trade Zone is in this hemisphere.

Electric Energy (Purchased). Electricity purchased for refinery operations that is not produced within the refinery complex.

Ethane. A normally gaseous paraffinic compound (C₂H₆) extracted from natural gas and refinery gas streams. "Ethane" includes any products containing 90 percent liquid volume or more ethane.

Ethane-Propane Mixtures. Mixtures of ethane and propane in which neither component is 90 percent or more of the liquid volume. It is extracted from natural gas and refinery gas streams.

Ethylene. An olefinic hydrocarbon, (C₂H₄) recovered from refinery or petrochemical processes.

Field Production. Represents crude oil production on leases, natural gas liquids production at natural gas processing plants, and new supply of other hydrocarbons and alcohol.

Fluid Coking. A thermal process utilizing the fluidized-solids technique for continuous conversion of heavy, low-grade oils into lighter products.

Gasoline Blending Components. Finished components in the gasoline range which will be used for blending or compounding into finished aviation or motor gasoline.

Gas Oil. A liquid petroleum distillate having a viscosity intermediate between that of kerosene and lubricating oil. Derives its name from having originally been used in the manufacture of illuminating gas. Now supplies distillate-type fuel oils and diesel fuel, also cracked to produce gasoline.

Imported Crude Oil Burned as Fuel. The amount of foreign crude oil burned as a fuel oil, usually as residual fuel oil, without being processed as such. *Imported crude oil burned as fuel* includes lease condensate and liquid hydrocarbons produced from tar sand oil, gilsonite, and oil shale.

Isomerization. A refining process which alters the fundamental arrangement of atoms in the molecule. Used to convert normal butane into isobutane, an alkylation process feedstock, and normal pentane and hexane into isopentane and isohexane, high-octane gasoline components.

Kerosene. A petroleum distillate that boils at a temperature between 300-550 degrees F., that has a flash point higher than 100 degrees F. by ASTM Method D56, that has a gravity range from 40-46 degrees API, and that has a burning point in the range of 150-175 degrees F. Included are the two classifications recognized by ASTM D-3699: No. 1-K and No. 2-K, and all grades of kerosene called range or stove oil which have properties similar to No. 1 fuel oil, but with a gravity of about 43 degrees API and a maximum end-point of 625 degrees F. Kerosene is used in space heaters, cook stoves, and water heaters and is suitable for use as an illuminant when burned in wick lamps.

Kerosene-Type Jet Fuel. A quality kerosene product with an average gravity of 40.7 degrees API, a 10 percent distillation temperature of 400 degrees F. It is covered by ASTM Specification D1655 and Military Specifications MIL-T-5624L (Grades JP-5 and JP-8). A relatively low-freezing point distillate of the kerosene type; it is used primarily for commercial turbojet and turbo-prop aircraft engines.

Lease Condensate. A natural gas liquid recovered from gas well gas (associated and non-associated) in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons.

Liquefied Petroleum Gases (LPG). Propane, propylene, butanes, butylene, butane-propane mixtures, ethane-propane mixtures, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate raw natural gas plant liquids.

Liquefied Refinery Gases (LRG). Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/or refrigeration they are retained in the liquid state. The reported categories are ethane and/or ethylene, propane and/or propylene, butane and/or butylene, butane-propane mixtures, and isobutane. Excludes still gases used for chemical or rubber manufacture which are reported as a petrochemical feedstock and also excludes liquefied gases ready for blending into gasoline which are reported as gasoline blending components. Liquefied refinery gases are reported for use as petrochemical feedstocks or other uses.

Lubricating Oils. A substance used to reduce friction between bearing surfaces. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. *Lubricants* includes all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. The three categories include Bright Stock, Neutral, and Other.

Bright Stock. A refined, high viscosity lubricating oil base stock that is usually made from residuum by a treatment such as deasphalting, acid treatment, or solvent extraction.

Neutral. A distillate lubricating oil base stock with a viscosity that is usually not above 550 Saybolt Universal Seconds (SUS) at 100 degrees F. It is prepared by a treatment such as hydrofining, acid treatment, or solvent extraction.

Other. A lubricating oil base stock used in finished lubricating oils and greases, including black, coastal, and red oils.

Middle Distillates. A general classification that includes distillate fuel oil and kerosene.

Miscellaneous Products. Includes all finished products not classified elsewhere, e.g., petrolatum, absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, specialty oils and medicinal oils.

Motor Gasoline Blending Components. Finished components in the gasoline range which will be used for blending or compounding into finished motor gasoline. Pool gasoline is included in this category.

Motor Gasoline, Finished. A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in spark-ignition engines. Specifications for motor gasoline, as given in ASTM Specification D439 or Federal Specification VV-G-1690B, include a boiling range of 122 degrees to 158 degrees F. at the 10-percent point to 365 degrees to 374 degrees F. at the 90-percent point and a Reid vapor pressure range from 9 to 15 psi. *Motor gasoline* includes finished leaded gasoline, finished unleaded gasoline, and gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Finished Leaded Gasoline. Contains more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon. The actual lead content of any given gallon, however, may vary as a function of the size of the producer and company according to specific Environmental Protection Agency waiver provisions. Premium and regular grades are included, depending on the octane rating. Includes leaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Finished Unleaded Gasoline. Contains not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes unleaded gasohol. Blend stock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Gasohol. A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) in which 10 percent or more of the product is alcohol.

Motor Gasoline, Total. Includes finished leaded motor gasoline, finished unleaded motor gasoline, motor gasoline blending components, and gasohol.

Naphtha-Type Jet Fuel. A fuel in the heavy naphtha boiling range with an average gravity of 52.8 degrees API and 20 to 90 percent distillation temperatures of 290 degrees to 470 degrees F., meeting Military Specification MIL-T-5624L (Grade JP-4). JP-4 is used for turbojet and turboprop aircraft engines, primarily by the military. Excludes ram-jet and petroleum rocket fuels.

Natural Gas. A mixture of hydrocarbons and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in underground reservoirs.

Natural Gas Field Facility. A field facility designed to process natural gas produced from more than one lease for the purpose of recovering condensate from a stream of natural gas; however, some field facilities are designed to recover propane, butane, natural gasoline, etc., and to control the quality of natural gas to be marketed.

Natural Gas Plant Liquids. Natural gas liquids recovered from natural gas in gas processing plants, and in some situations, from natural gas field facilities. Natural gas liquids extracted by fractionators are also included. These liquids are defined according to the published specifications of the Gas Processors Association and the American Society for Testing and Materials, and are classified as follows: Ethane, propane, ethane-propane mix, isobutane, butane, butane-propane mix, isopentane, natural gasoline, plant condensate, unfractionated stream, and other products from natural gas processing plants (i.e., products meeting the standards of finished petroleum products produced at natural gas processing plants, such as finished

motor gasoline, finished aviation gasoline, special naphthas, kerosene; distillate fuel oil, and miscellaneous products).

Natural Gasoline and Isopentane. A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas, that meets vapor pressure, end-point, and other specifications for natural gasoline set by the Gas Processors Association. Includes isopentane which is a saturated branch-chain hydrocarbon, C₅H₁₂, obtained by fractionation of natural gasoline or isomerization of normal pentane.

OPEC. The acronym for the Organization of Petroleum Exporting Countries, oil-producing and exporting countries that have organized for the purpose of negotiating with oil companies on matters of oil production, prices, and future concession rights. Current members are Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

Operable Distillation Capacity. The maximum amount of input that can be processed by a crude oil distillation unit in a 24-hour period, making allowances for processing limitations due to types and grades of inputs, limitations of downstream facilities, scheduled and unscheduled downtimes, and environmental constraints. Includes any shutdown capacity that could be placed in operation within 90 days.

Other Hydrocarbons. Materials received by a refinery and consumed as raw materials. Includes hydrogen, coal tar derivatives, gilsonite, and natural gas received by the refinery for reforming into hydrogen. Natural gas to be used as fuel is excluded.

Petrochemical Feedstock Use. Chemical feedstocks derived from petroleum, principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. The categories reported are *Naphtha-less than 400 degrees F. end-point* and *Other oils-over 400 degrees F. end-point*.

Naphtha-Less Than 400 Degrees F. End-Point. A naphtha with an end point of less than 400 degrees F. that is reported as used as a petrochemical feedstock.

Other Oils-Over 400 Degrees F. End-Point. Oils with an end point over 400 degrees F. that is reported as used as a petrochemical feedstock.

Petroleum Coke. A residue, the final product of the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion factor is five barrels of 42 U.S. gallons per short ton.

Marketable Coke. Those grades of coke produced in delayed or fluid cokers which may be recovered as relatively pure carbon. This *green* coke may be sold or further purified by calcining.

Catalyst Coke. In many catalytic operations (i.e., catalytic cracking) carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refinery process. This carbon or coke is not recoverable in a concentrated form.

Petroleum Products. Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, natural gasoline and isopentane, plant condensate, unfractionated stream, liquefied petroleum gases; aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, naphtha less than 400° F. end-point, other oils-over 400° F. end-point, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Petroleum Refinery. An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Plant Condensate. One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

Primary Stocks. Stocks of crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tank farms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in transit from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. *Primary Stocks* excludes stocks of foreign origin that are held in bonded warehouse storage.

Propane. A normally gaseous paraffinic compound, C₃H₈, which includes all products covered by NGPA Specification for commercial and HD-5 propane and ASTM Specification D1835. It is used primarily as a fuel and as a petrochemical feedstock.

Propylene. An olefinic hydrocarbon, C₃H₆, recovered from refinery or petrochemical processes.

Residual Fuel Oil. The topped crude of refinery operation which includes No. 5 and No. 6 fuel oils as defined in ASTM Specification D396 and Federal Specification VV-F-815C, Navy Special fuel oil as defined in Military Specification MIL-F-859E including Amendment 2 (NATO Symbol F-77), and Bunker C fuel oil. Residual fuel oil is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes. Includes imported crude oil to be burned as a fuel.

Road Oil. Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in

six grades from 0, the most liquid, to 5, the most viscous.

Special Naphthas. All finished products within the gasoline range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point and have a boiling range of 90 degrees to 220 degrees F. *Special naphthas* includes all commercial hexane and cleaning solvents conforming to ASTM Specifications D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

Steam (Purchased). Steam, purchased for use by a refinery, that was not generated from within the refinery complex.

Still Gas (Refinery Gas). Any form or mixture of gas produced in refineries by distillation cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene, butane, butylene, propane, propylene, etc. Still gas is reported for petrochemical feedstock use and/or refinery fuel use.

Petrochemical Feedstock Use. Includes all refinery streams which are used by chemical or rubber manufacturing operations for further processing, less the amount of such streams returned to the source refinery. Finished petrochemical products are not included. For example, polyethylene, butadiene, etc., are considered petrochemical products; therefore, only their feed-stock equivalents are included.

Fuel Use. All other still gas.

Strategic Petroleum Reserve (SPR). Stocks (currently, only crude oil) maintained by the Federal Government for use during periods of major supply interruption.

Thermal Cracking. A refining process in which heat and pressure are used to break down, rearrange, or combine hydrocarbon molecules. Thermal cracking is used to increase the yield of gasoline obtainable from crude oil.

Unfinished Oils. Includes all oils requiring further processing, except those requiring only mechanical blending.

Unfractionated Streams. Mixtures of unsegregated natural gas liquid components excluding those included in plant condensate. This product is extracted from natural gas.

Vacuum Distillation. Distillation under reduced pressure (less the atmospheric) which lowers the boiling temperature of the liquid being distilled. This technique, with its relatively low temperatures, prevents cracking or decomposition of the charge stock.

Visbreaking. A thermal cracking process in which heavy vacuum-still bottoms produced on the primary

distillation unit are cracked to increase production of distillate products.

Wax. A solid or semi-solid material derived from petroleum distillates or residues by such treatments as chilling, precipitating with a solvent, or de-oiling. It is light-colored, more-or-less translucent crystalline mass, slightly greasy to the touch, consisting of a mixture of solid hydrocarbons in which the paraffin series predominates. Includes all marketable wax whether crude scale or fully refined. The three grades included are microcrystalline, crystalline-fully refined, and crystalline-other. The conversion factor is 280 pounds per 42-gallon barrel.

Microcrystalline Wax. Wax extracted from certain petroleum residues having a finer and less apparent crystalline structure than paraffin wax and having the following physical characteristics:

Penetration at 77 degrees F. (D-1321)-60 maximum.
Viscosity at 210 degrees F. In Saybolt Universal Sec-

onds (SUS) (D-88)-60 SUS (10.22 centistokes) minimum to 150 SUS (31.8 centistokes) maximum. Oil content (D-721)-5 percent minimum.

Crystalline-Fully Refined Wax. A light-colored paraffin wax having the following characteristics:

Viscosity at 210 degrees F. (D-88)-59.9 SUS (10.18 centistokes) maximum. Oil Content (D-721)-0.5 percent maximum. Other + 20 color, Saybolt minimum.

Crystalline-Other Wax. A paraffin wax having the following characteristics:

Viscosity at 210 degrees F. (D-88)-59.9 SUS (10.18 centistokes) maximum. Oil Content (D-721)-0.51 percent minimum to 15 percent maximum.

Western Hemisphere. That half of the earth that includes North and South America and the surrounding waters.

Bureau of Mines Petroleum Refining Districts and PAD Districts

The following are the Bureau of Mines petroleum refining districts which make up the PAD districts:

PAD District I

East Coast: District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Tompkins, Chemung and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York, and all counties east thereof.

Appalachian #1: The State of West Virginia and those parts of the States of Pennsylvania and New York not included in the East Coast District.

PAD District II

Appalachian #2: The following counties of the State of Ohio: Erie, Huron, Crawford, Marion, Delaware, Franklin, Pickaway, Ross, Pike, Scioto, and all counties east thereof.

Indiana—Illinois—Kentucky: The States of Indiana, Illinois, Kentucky, Tennessee, Michigan, and that part of the State of Ohio not included in the Appalachian District.

Minnesota—Wisconsin—North and South Dakota: The States of Minnesota, Wisconsin, North Dakota, and South Dakota.

Oklahoma—Kansas—Missouri: The States of Oklahoma, Kansas, Missouri, Nebraska, and Iowa.

PAD District III

Texas Inland: The State of Texas except the Texas Gulf Coast District.

Texas Gulf Coast: The following counties of the State of Texas: Newton, Orange, Jefferson, Jasper, Tyler, Hardin, Liberty, Chambers, Polk, San Jacinto, Montgomery, Harris, Galveston, Waller, Fort Bend, Brazoria, Wharton, Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.

Louisiana Gulf Coast: The following Parishes of the State of Louisiana: Vernon, Rapides, Avoyelles, Pointe Coupee, West Feliciana, East Feliciana, Saint Helena, Tangipahoa, Washington, and all Parishes south thereof. Also the following counties of the State of Mississippi: Pearl River, Stone, George, Hancock, Harrison, and Jackson. Also the following counties of the State of Alabama: Mobile and Baldwin.

North Louisiana—Arkansas: The State of Arkansas and those parts of the States of Louisiana, Mississippi, and Alabama not included in the Louisiana Gulf Coast District.

New Mexico: The State of New Mexico.

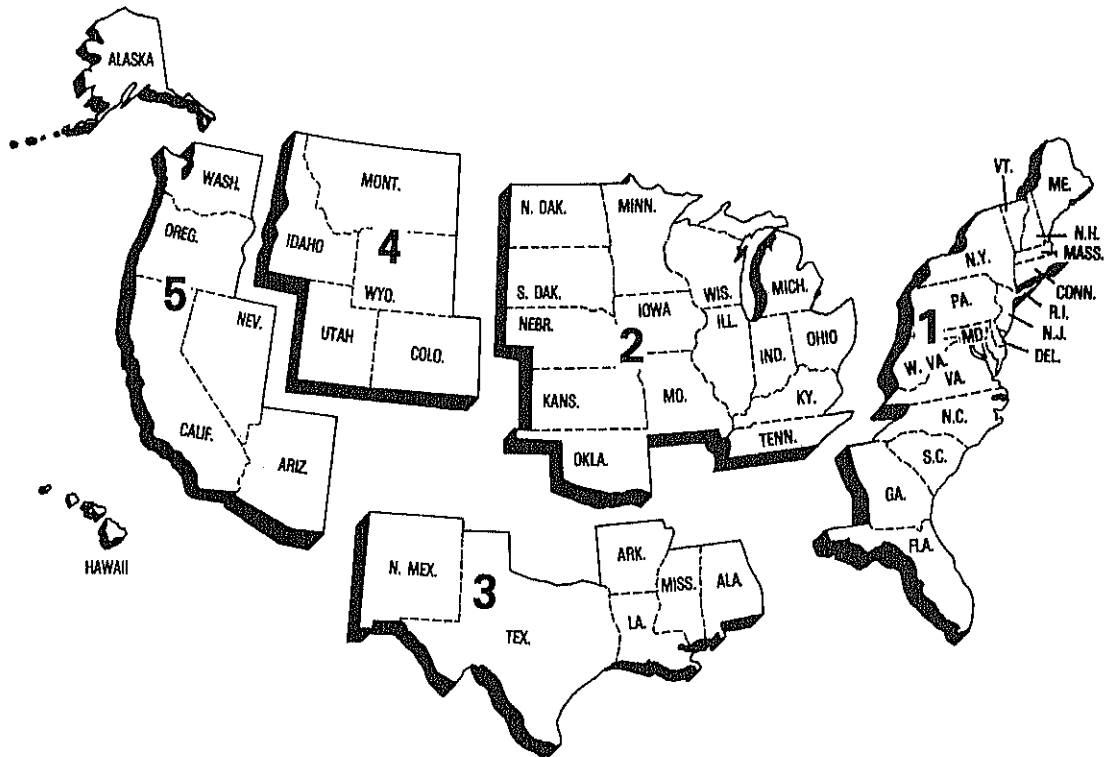
PAD District IV

Rocky Mountain: The States of Montana, Idaho, Wyoming, Utah, and Colorado.

PAD District V

West Coast: The States of Washington, Oregon, California, Nevada, Arizona, Alaska, and Hawaii.

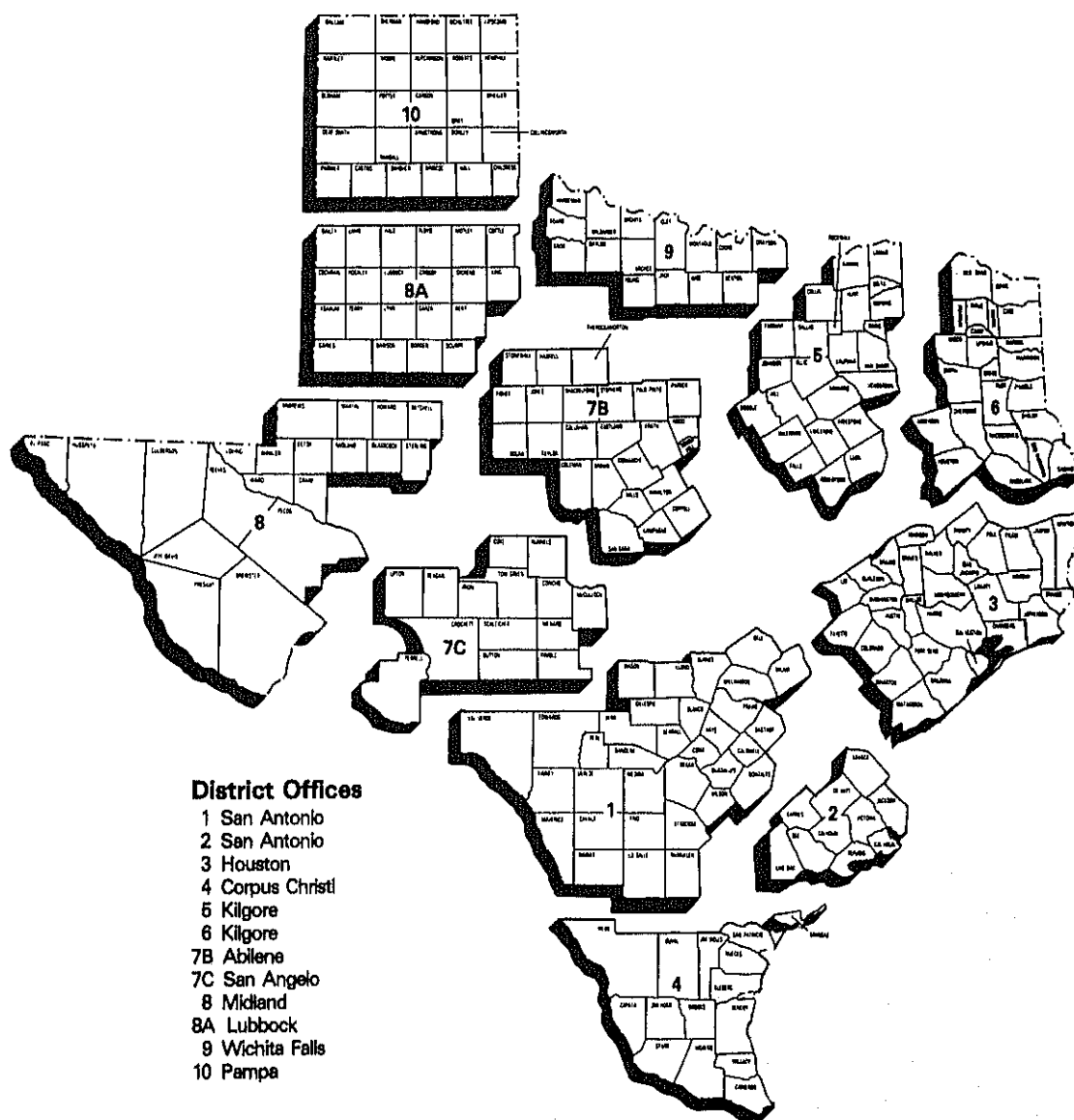
Petroleum Administration for Defense (PAD) Districts



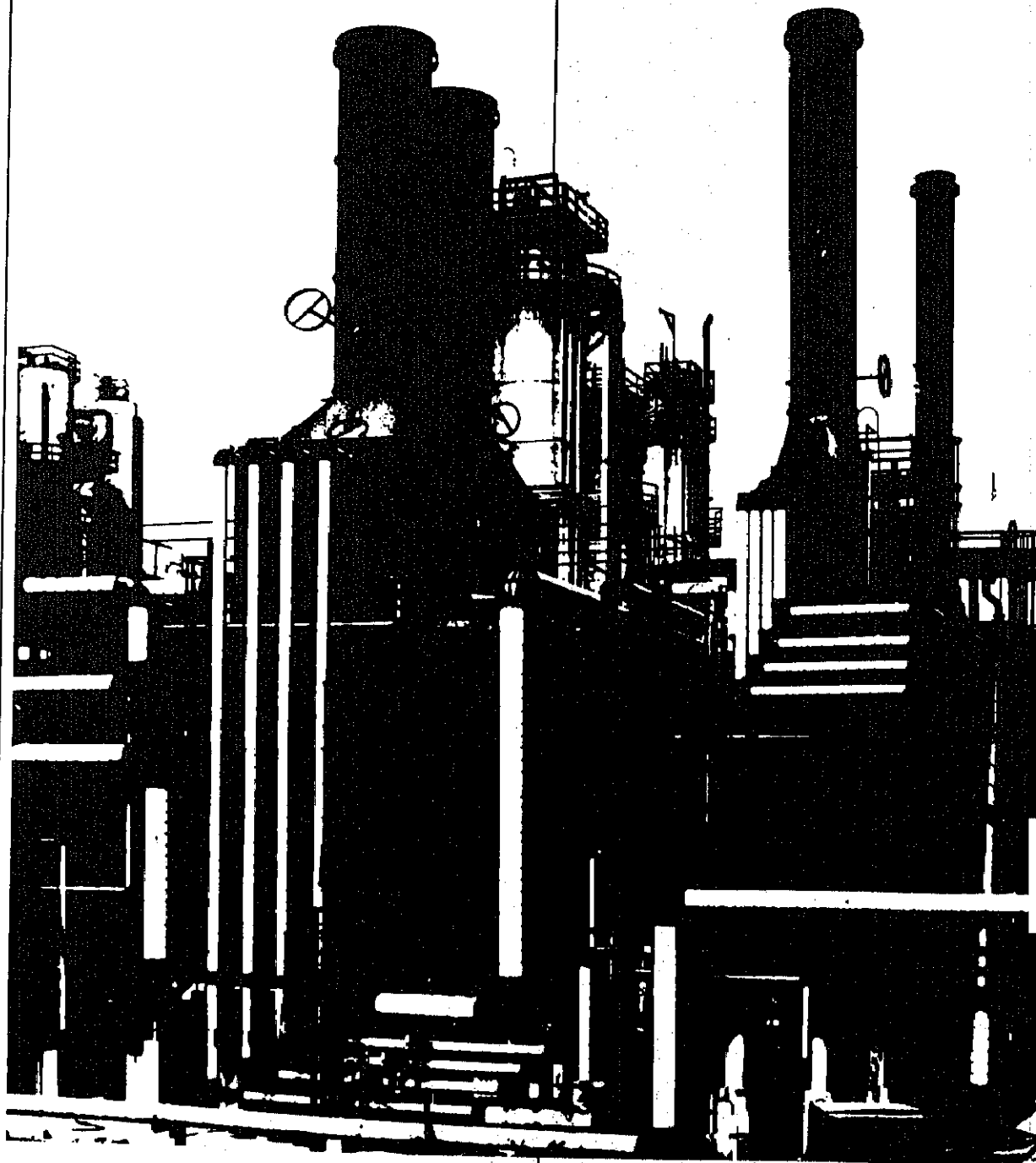
Bureau of Mines Refining Districts



District Map Oil and Gas Division Railroad Commission of Texas



Explanatory Notes



Explanatory Notes

Note 1: Data Collection Methodology

Background

Beginning in January 1983, the Energy Information Administration (EIA) unified its petroleum supply data collection activities into the Petroleum Supply Reporting System (PSRS). The PSRS represents a family of data collection survey forms, data processing systems and publication systems that have been consolidated to achieve comparability and consistency throughout. The primary focus of the consolidation has been to revise the weekly and monthly survey reporting forms to assure consistency in form layout, preparation instructions, and definitions. As a result, a new set of survey forms were implemented in January 1983. The following are the new form numbers and their corresponding predecessor forms:

New Form Number	Name	Old Form Number
EIA-800	Weekly Refinery Report	EIA-161
EIA-801	Weekly Bulk Terminal Report	EIA-162
EIA-802	Weekly Product Pipeline Report	EIA-163
EIA-803	Weekly Crude Oil Stocks Report	EIA-164
EIA-804	Weekly Imports Report	EIA-165
EIA-805	Weekly Shipments from Puerto Rico to the United States Report	—
EIA-810	Monthly Refinery Report	EIA-87
EIA-811	Monthly Bulk Terminal Report	EIA-88
EIA-812	Monthly Product Pipeline Report	EIA-89
EIA-813	Monthly Crude Oil Report	EIA-90
ERA-60	Monthly Imports Report	ERA-60
EIA-815	Monthly Shipments from Puerto Rico to the United States Report	FEA-P133-M-0
EIA-816	Monthly Natural Gas Liquids Report	EIA-64
EIA-817	Monthly Tanker and Barge Movement Report	EIA-170

Forms EIA-800 through 805 comprise the Weekly Petroleum Supply Reporting System (WPSRS). This system is designed to collect basic refinery operations and product stock data for major products on a weekly basis. Data from the WPSRS are published in the *Weekly Petroleum Status Report (WPSR)* and are also used to calculate the preliminary statistics in the "Summary Statistics" section of the *Petroleum Supply Monthly*

(PSM). A description of the WPSRS survey forms follows in Note 1.1.

Forms EIA-810-813, 815-817 and ERA-60 comprise the Monthly Petroleum Supply Reporting System (MPSRS). These surveys collect detailed refinery operations data, refinery, bulk terminal and pipeline stocks data, crude oil and petroleum product imports data and movements of petroleum products and crude oil between PAD Districts data. These surveys are the primary source of data for the "Summary Statistics" and "Detailed Statistics" sections of the PSM. A description of MPSRS survey forms follows in Note 1.2.

Data are also obtained in magnetic tape form from the Bureau of the Census on a monthly basis. These tapes contain aggregated import and export statistics that are used in the preparation of the PSM. A description of the Census data follows in Note 1.3.

Note 1.1: Weekly Petroleum Supply Reporting System (WPSRS)

Background

The EIA first began publishing weekly petroleum supply statistics in April 1979 in response to the Iranian oil crisis. Initially, the published data were taken from the American Petroleum Institute (API) *Weekly Statistical Bulletin*. However, in January 1980 the EIA began to publish weekly statistics from its own surveys, with the exception of imports statistics which the EIA did not begin collecting until June 1980.

The weekly surveys collect data comparable to those collected on a monthly basis. Selected petroleum companies report weekly data to the EIA on crude oil and petroleum product stocks, refinery inputs and production, and crude oil and petroleum product imports. On Forms EIA-800 through EIA-803, companies report data on a custody basis. On the Form EIA-804, the importer of record reports each shipment entering the United States. On Form EIA-805, a company shipping unfinished oils and finished petroleum products into the United States from Puerto Rico reports each shipment. Current weekly data and the most recent monthly data are used to estimate the totals that are published in the *Weekly Petroleum Status Report*.

Sample Frame

The sample of companies that report weekly is selected from the universe of companies that report on the comparable monthly surveys. Sampled companies report data only for facilities in the 50 States and District of Columbia.

The sample for each survey is taken from the following universe:

EIA-800: Based on the EIA-810 universe, which includes all petroleum refineries in the United States and

its territories, industrial facilities that have crude oil distillation capacity and produce some refined petroleum products, and plants that produce finished motor gasoline through mechanical blending. The selected sample size is 215.

EIA-801: Based on the EIA-811 universe, which includes all bulk terminal facilities in the United States and its territories that have either a total bulk storage capacity of 50,000 barrels or more, or that receive petroleum products by tanker, barge, or pipeline. The selected sample size is 93.

EIA-802: Based on the EIA-812 universe, which includes all petroleum product pipeline companies in the United States and its territories that transport refined petroleum products, including interstate, intrastate and intracompany pipeline movements. Pipeline companies that transport only natural gas liquids are not included in the EIA-802 frame. Only those pipeline companies that transport products covered in the weekly survey are included. The selected sample size is 65.

EIA-803: Based on the EIA-813 universe, which consists of all companies which carry or store crude oil of 1,000 barrels or more in the 50 States, and the District of Columbia. Included are gathering and trunk pipeline companies (including interstate, intrastate, and intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water.

EIA-804: Based on the EIA-814 universe, which includes all importers of record of crude oil and petroleum products into the United States and Puerto Rico. The selected sample size is 65.

EIA-805: Based on the EIA-815 universe, which includes all shippers of unfinished oils and petroleum products into the United States from Puerto Rico. Four companies report.

Sampling Method

The cut-off method is the sampling procedure used for all weekly surveys except the EIA-802, which uses the monthly universe in its entirety. In the cut-off method, companies are ranked from largest to smallest on the basis of the quantities reported during some previous 12-month period. Companies are chosen for the sampling, beginning with the largest and adding companies until the total sample covers 90 percent of the total for the previous time period for each product published in the *Weekly Petroleum Status Report*.

Collection Methods

Data are collected by mail, mailgram, telephone, Telex, and Telefax on a weekly basis. The report period closes each Friday at 7 a.m. All canvassed firms and terminal operations companies must file by 5 p.m. on the following Monday.

Estimation and Imputation

After company reports have been checked and entered into the weekly data base, weekly totals for given products are estimated by using the following formula.

The total reported by all companies for the most recent month (M_t) is divided by the amount reported by the sample of companies for the most recent month (M_s). The result is multiplied by the amount reported by the sample of companies for the current week (W_s). The answer, W_t , is an estimate of the amount that would have been reported by all companies for the current week if all companies reported each week.

$$W_t = \frac{M_t}{M_s} (W_s)$$

This procedure is used to estimate total weekly inputs to refineries and production.

To estimate stocks of finished products, the preceding procedure is followed separately for refineries, bulk terminals, and pipelines. Total estimates are formed by summing over establishment types.

Weekly imports data are highly variable on a company-by-company basis or a week-by-week basis. Therefore, an exponentially smoothed ratio has been developed. The estimate of weekly imports is the sum of the smoothed ratio multiplied by the weekly values and estimates for shipments from Puerto Rico. Imports of other oils includes an adjustment from Census data for unlicensed products because of coverage differences between the monthly imports data and Census data.

Explicit imputation is done for companies which do not respond in a given week. The imputed values are exponentially smoothed means of recent reports from the specific company.

Response Rates

The response rate for the published estimates is usually between 95 and 98 percent.

Note 1.2: Monthly Petroleum Supply Reporting System (MPSRS)

Background

The MPSRS was implemented in January 1983 as the result of an extensive effort to integrate the collection and processing of petroleum supply data that have been collected on other survey forms for many years. The collection of monthly petroleum supply statistics began as early as 1918 when the Bureau of Mines (BOM) began collecting data on refinery operations and crude oil stocks and movements. The collection systems

were further expanded to include natural gas plant liquids production and storage in 1925, Imports of crude oil and petroleum products and storage and movements of petroleum products in 1959, and tanker and barge movements of crude oil and petroleum products in 1964. Since their inception, each survey has undergone numerous changes, but the MPSRS is the first effort to make them all consistent and comparable.

Respondent Frame

EIA-810: All petroleum refineries and plants that produce finished motor gasoline through the mechanical blending of liquids which are operated or controlled in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, the Hawaiian Foreign Trade Zone, and Guam. Approximately 313 respondents report on the EIA-810.

EIA-811: All bulk terminal facilities in the 50 States and the District of Columbia, Puerto Rico, and the Virgin Islands that (a) have a total bulk storage capacity of 50,000 barrels or more and/or (b) receive petroleum products by tanker, barge, or pipeline, regardless of ownership of the material. Approximately 328 respondents report on the EIA-811.

EIA-812: All products pipeline companies that carry petroleum products (including Interstate, intrastate and intracompany pipelines) in the 50 States and the District of Columbia. Approximately 94 respondents report on the EIA-812.

EIA-813: All companies which carry or store crude oil of 1,000 barrels or more in the 50 States, and the District of Columbia. Included are gathering and trunk pipeline companies (including Interstate, intrastate, and intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water.

EIA-815: All licensed importers and importers of record shipping petroleum products from Puerto Rico into the 50 States and the District of Columbia.

Import data from the ERA-60 and EIA-815 are integrated into the import statistics reported in the PSM.

EIA-816: All operators of facilities designed to extract liquid hydrocarbons from natural gas stream (natural gas processing plants) or to separate a hydrocarbon stream into its component products, i.e., propane, butane, natural gasoline, etc. (fractionators). Approximately 990 respondents report on the EIA-816.

EIA-817: All known companies and plants that have custody of crude oil and petroleum products transported by tanker and barge between PAD Districts or between PAD Districts and the Panama Canal. There are about 50 respondents.

ERA-60: All licensed importers and importers of record importing crude oil and petroleum products into the

United States and Puerto Rico. The respondent universe consisted of approximately 1,100 firms as of July 31, 1982. However, only a selected 250 importers must report each month regardless of import activity. All others must report only for a month in which they actually had imports. The respondent universe for this survey is updated whenever an import license is granted by the Office of Oil Imports of the ERA.

EIA utilizes a number of sources and methods to maintain the survey respondent lists. On a regular basis, survey managers review industry publications such as the *Oil and Gas Journal* and *LP Gas Almanac* for information on facilities or companies going into operation or closing down. These are augmented by articles in newspapers, letters from respondents indicating changes in status and information received from survey systems operated by other offices.

Periodically an extensive survey study is conducted to completely refresh the frames. This involves consolidating information from every known source including State agencies, federal agencies (e.g., EPA, Corps of Engineers, Census Bureau, etc.), and private industry directories. The effort also includes the evaluation of the impact of potential frame changes on the historical time series of data published from these respondents. The results of this frame study are usually implemented in January to provide a full year under the same frame.

Collection Methods

The data for all of the MPSRS surveys are collected monthly. Completed forms are required to be postmarked by the 20th day following the end of the report month, with the exception of the EIA-815 and ERA-60 which are due 15 work days following the end of the report month. Telephone follow-up calls are made to nonrespondents prior to the publication deadline, for their data. An automated mailing list is maintained and is used to monitor receipt of the forms.

Imputing Missing Data

Imputation is performed only for nonresponding companies that submitted reports the previous month. For such companies, previous monthly values are used for current values. The previous month's ending stocks value is used for both the current month's beginning stocks and the current month's ending stocks. In the event that the previous month's data were estimated, the respondent is contacted and requested to submit estimates, if necessary, to be followed by submission of actual data. Data for nonrespondents on the EIA-815 and 817, and ERA-60 are not imputed.

Response Rates

As of the filing deadline, the response rates of the EIA-810 through EIA-813 respondents is over 90 per-

cent. The response rate for the EIA-816 is over 85 percent and for the EIA-817 it is 98 percent. All companies that have not responded are contacted by telephone. Although data are taken by telephone to expedite processing, a certified submission is still required. Names of companies that fail to file for 2 consecutive months are forwarded for further noncompliance action.

In July 1982, the ERA-60 survey had a response rate of 98 percent by the filing deadline. The universe was 1,100 firms at that time. (Because this is a dynamic survey, the universe is constantly changing.) Standard follow-up of nonrespondents is made to insure that all reports are received, since data are not imputed for nonrespondents. In addition, response is cross-checked with response on the Petroleum Licensing Decrementation System (PLDS), a listing of each month's Importers. The response rate is generally 98 to 99 percent by the time the data are first published.

Note 1.3: Census Import (IM-145) and Export (EM-522 and EM-594) Data

Background

Each month the EIA purchases magnetic tapes of aggregated Import and export statistics from the Bureau of the Census. These data provide the only source of export statistics and are used to augment the Import data collected by the EIA. Export statistics and Import data from the Census tapes on liquefied petroleum gases, bonded ships bunkers and military offshore use are published in the PSM.

Import Statistics (IM-145)

Coverage

The Import statistics reflect both government and non-government imports of merchandise from foreign countries into the U.S. Customs territory (the 50 States, the District of Columbia, and Puerto Rico), without regard to whether or not a commercial transaction is involved. In general, the statistics record the physical movement of merchandise into the United States from foreign countries, with the exception of the following types of transactions that are excluded from the statistics:

1. Merchandise in-transit through the United States, when documented with Customs as an in-transit movement.
2. Shipments from anywhere to U.S. possessions and shipments from U.S. possessions to the United States. (U.S. possessions include Puerto Rico, the Virgin Islands, Guam, and American Samoa.)
3. U.S. merchandise that was held in foreign countries by the U.S. Armed Forces and is returned to the United States for the use of the Armed Forces.

Source of Import Information

The official U.S. Import statistics are compiled by the Bureau of the Census from copies of the Import entry and warehouse withdrawal forms that Importers are required by law to file with Customs officials (Customs Forms 7501, 7505, and 7506).

Imported petroleum is reported as *Imports for Consumption*. Imports for consumption are a combination of entries for immediate consumption and withdrawals from warehouses for consumption. With certain exceptions as indicated above, these data generally reflect the total of commodities entered into U.S. consumption channels.

Country and Area of Origin

The country reported in the statistics as the country of origin is defined as the country where the merchandise was grown, mined, or manufactured. In instances where the country of origin cannot be determined, the transactions are credited to the country of shipment.

Export Statistics (EM-522 and EM-594)

Coverage

The export statistics reflect both government and non-government exports of domestic and foreign merchandise from the U.S. Customs territory (the 50 States, the District of Columbia, and Puerto Rico) to foreign countries, without regard to whether or not the exportation involves a commercial transaction. In general, the statistics record the physical movement of merchandise out of the United States to foreign countries, with the exception of the following types of transactions:

1. All shipments from U.S. possessions, regardless of whether the shipments are sent to the United States, to other U.S. possessions, or to foreign countries.
2. Merchandise shipped in transit through the United States from one foreign country to another, when documented as such with U.S. Customs.
3. Bunker fuels and other supplies and equipment for use on departing vessels, planes, or other carriers engaged in foreign trade.

Source of Export Information

The official U.S. export statistics are compiled by the Bureau of the Census primarily from copies of Shipper's Export Declarations. Exporters are required to file Shipper's Export Declarations with Customs officials. The only exceptions are those exporters who have been authorized to submit data directly to the Bureau of Census on magnetic tape, punched cards, or monthly Shipper's Summary Export Declarations.

Country and Area of Destination

The country of destination is defined as the country of ultimate destination or the country where the goods are to be consumed, further processed, or manufactured, as known to the shipper at the time of exportation. If the shipper does not know the country of ultimate destination, the shipment is credited to the last country to which the shipper knows that the merchandise will be shipped in the same form as it was when exported.

Note 2: Supply

The components of petroleum supply are field production, refinery production, imports, and stock withdrawal or addition:

Field Production is the sum of crude oil production (including lease condensate), natural gas processing plant production, and new supply (field production) of other liquids used by refineries.

Crude oil production is estimated based on data received from State conservation and revenue agencies. For further explanation, see Explanatory Note 3.

Field production of natural gas plant liquids (NGPL), including finished petroleum products, is reported monthly on survey Form EIA-816, *Monthly Natural Gas Liquids Report*. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month. For survey description and other detail, see Explanatory Note 1.2.

Refinery Production of LRGs, ethane, and finished petroleum products is reported monthly on survey Form EIA-810, *Monthly Refinery Report*. Published production of these products equals refinery production minus refinery input. Refinery production of unfinished oils and of motor and aviation gasoline blending components appears on a net basis under refinery input. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month. It should also be noted that refineries do not export production of crude oil, natural gasoline, isopentane, unfractionated stream, plant condensate, or other hydrocarbons.

Imports of crude oil and petroleum products are reported monthly on Form ERA-60, *Report of Oil Imports into the United States and Puerto Rico*, and Form EIA-815, *Shipments of Refined Products (Including Unfinished Oils) from Puerto Rico to the United States*. In addition, the Census Bureau Tabulation IM-145 summarizes import data from Customs import declarations reported on Customs Forms 7501 and 7505. The most prominent difference between the EIA and Census systems appears in imports of liquefied petroleum gases

(LPG), where the Census data show a much higher level of imports than EIA data. This occurs because the ERA-60 respondent frame was built by monitoring importers of licensed products and LPGs are not licensed products. Therefore, respondents that import only LPGs have not been identified, and do not report these imports to the Department of Energy. Since these importers are required to file form 7501 with the U.S. Customs Service, EIA obtains data on imports of LPGs from Census Tabulation IM-145. Additional data taken from the IM-145 are relatively small quantities of naphtha- and kerosene-type jet fuels, distillate fuel oils, and residual fuel oils withdrawn from bonded storage for use in international trade and for military offshore use. Even though these duty-free fuels are stored on United States shores, they did not enter the United States for domestic consumption and therefore are not included in the ERA-60 reporting system.

Stock Withdrawal (+) or Addition (-) is calculated by subtracting stocks at the end of the month from stocks at the beginning of the same month. (Note: The beginning stocks of one month are equal to the ending stocks of the previous month.) A positive result (+) would represent a withdrawal from stocks and an increase in petroleum supplies distributed for domestic consumption. A negative result (-) would represent a buildup of stocks and a reduction in the amount of petroleum supplies distributed for domestic consumption. For a description of survey forms used to make stock withdrawal or addition calculations see Explanatory Note 5.

Unaccounted-for Crude Oil is a balancing item that represents the difference between crude oil supply and disposition.

Crude oil supply is the sum of field production, imports and stock withdrawals or additions. Crude oil disposition is the sum of exports, refinery input, losses and product supplied. Unaccounted-for crude oil is calculated by subtracting crude oil supplies from crude oil disposition. A positive result indicates that refiners and exporters reported use of more crude oil than was reported to have been available to them. (This occurs, for example, when imports are undercounted due to late reporting or other problems.) A negative result would indicate that more crude oil was reported to have been supplied to refiners and exporters than they reported used.

Note 3: Domestic Crude Oil Production

Data for the Crude Oil Production System (COPS) are reported to the Department of Energy by each of the State conservation agencies, which collect crude oil production values for tax purposes. The U.S. Geological Survey reports the volume of crude oil that is produced offshore in Federally-owned waters. With the exception of ten State conservation agencies, all of these reports are received monthly. After each calendar year, these monthly numbers are updated using the annual reports

from the State conservation agencies and the U.S. Geological Survey. The ten States that do not report monthly values are Indiana, Kentucky, Missouri, Arkansas, Utah, New York, Ohio, Pennsylvania, West Virginia, and Wyoming. Monthly values are estimated for these States using the individual linear trends of their historical annual crude oil production values.

There is a time lag of approximately 4 months between the end of the reporting month and the time when the monthly COPS information becomes available. Table 11 of this publication provides information on crude oil production for the most recent month for which COPS values are available. In order to present more timely crude oil production values, the EIA's Dallas Field Office prepares a series of State level estimates which are based on historical production patterns and are summed to obtain the monthly crude oil production values shown in the summary statistics of this publication.

The individual State level estimates are either exponential curve fitted projections based on recent data or are constant level projections based on the average production rate during a recent time period. In some cases, adjustments are made to these estimates based on additional information on expected changes in production rates supplied by a State agency, a trade association, or an individual field operator.

Note 4: Disposition

The components of petroleum disposition are crude oil losses, refinery inputs, exports, and products supplied for domestic consumption.

Crude Oil Losses is the sum of crude oil losses at refineries. Crude oil losses at refineries are reported on Form EIA-810, *Refinery Report*.

Refinery Inputs of crude oil, natural gas plant liquids, and other liquids are reported monthly on survey Form EIA-810, *Monthly Refinery Report*. Published inputs of unfinished oils and of motor and aviation gasoline blending components equal refinery input minus refinery output. Refinery inputs of finished petroleum products are reported on a net basis under refinery production.

Exports of crude oil and petroleum products are compiled from Census Bureau tabulations EM-522 and EM-594. Exports include crude oil shipments to Puerto Rico, the Virgin Islands, and the Hawaiian Foreign Trade Zone, which are obtained from refinery receipts reported on Form EIA-810, by refineries located in these places.

Product supplied for each product is calculated by summing field production plus refinery production, plus imports, plus stock withdrawal or minus stock addition, minus crude oil losses (plus net receipts when calculated on a PAD District basis), minus re-

finery input, minus exports. This formula ensures that total disposition equals total supply.

Products supplied indicates those quantities of petroleum products supplied for domestic consumption. Occasionally, the result for a product is negative because total disposition of that product exceeds total supply. Negative product supplied may occur for a number of reasons: (1) product reclassification has not been reported, (2) data were misreported or reported late, (3) in the case of calculations on a PAD District basis, the figure for net receipts was inaccurate because the coverage of interdistrict movements was incomplete.

Product supplied for crude oil is the sum of crude oil burned on leases and by pipelines as fuel oil. These data are reported on EIA-813, *Monthly Crude Oil Report*. Prior to January 1983, crude oil burned on leases and by pipelines as fuel oil were reported as either distillate or residual fuel oil and included in product supplied for these products.

Note 5: Stocks

Primary stocks of crude oil are the sum of ending stocks reported monthly on Form EIA-810, *Monthly Refinery Report*, and on Form EIA-813, *Monthly Crude Oil Report*. Crude oil held in the Strategic Petroleum Reserve is included unless otherwise noted. Alaskan crude oil in transit is also included. Stocks of crude oil are also reported weekly on Form EIA-800, *Weekly Refinery Report*, and on Form EIA-803, *Weekly Crude Oil Stocks Report*. Primary stocks of petroleum products are summed from data reported on Form EIA-816, *Monthly Natural Gas Liquids Report*, Form EIA-811, *Monthly Bulk Terminal Report*, and on Form EIA-812, *Monthly Product Pipeline Report*. Primary stocks of petroleum products do not include either secondary stocks held by dealers and jobbers or stocks held by consumers. Petroleum product stocks are also reported weekly on Form EIA-800, *Weekly Refinery Report*, Form EIA-801, *Weekly Bulk Terminal Report*, and Form EIA-802, *Weekly Crude Oil Stocks Report*. For survey descriptions and other details, see Explanatory Notes 1.1-1.3.

Note 6: Average Stock Levels

The graphs displaying monthly stock levels of crude oil, motor gasoline, distillate fuel oil, residual fuel oil, liquefied petroleum gases, and other products provide the user with recent data as well as a summary of data from January through December or from July through June for the most recent 3-year period. This summary takes the form of an *average range* that includes seasonal variation determined from a longer time period. The

average range represents the historical pattern; it is not a forecast.

These curves are updated semiannually (on April 1 and October 1), by basing the *average ranges* on a more recent time period. Each 3-year data series is adjusted by dropping the first 6 months and including the most recent 6 months.

For each data series, the monthly seasonal factors are estimated by means of a seasonal adjustment technique developed at the Bureau of the Census (Census X-11). The seasonal factors are assumed to be stable (i.e., unchanging from year to year) and additive. The series is deseasonalized by subtracting the seasonal factor for the appropriate month from the reported stock levels. The intent of deseasonalization is to remove only seasonal variation from the data. Thus, a deseasonalized series would contain the same trends and irregularities as the original data. For crude oil stocks, the derived seasonal factors are very small relative to crude oil stock levels. Therefore, the seasonal factors for distillate fuel oil, residual fuel oil, liquefied petroleum gases and other products are derived using monthly data from 1974-1980. For motor gasoline, the seasonal factors are based on monthly data from 1975, 1976, 1978, 1979 and 1980. In 1977, there was virtually no seasonal behavior in motor gasoline stocks. Monthly stock levels stayed at the same high level for the entire year. In addition, the seasonal patterns in 1973, 1974 and 1977 were not representative of the recent past, and these years were not used in the determination of seasonal patterns for motor gasoline stocks. Because of these differences in the year-to-year seasonal fluctuation of motor gasoline, the evidence for the illustrated seasonal patterns for crude oil, distillate fuel oil, residual fuel oil, liquefied petroleum gases and other products is stronger than is the evidence for the illustrated seasonal patterns for motor gasoline.

In some cases, these seasonal patterns do not show a smooth transition from month to month. For example, the June factor for residual fuel oil is slightly less than the May and July values, making a bump in the curve. As there is little difference in the magnitude of these seasonal factors, it is possible that this variation is due to the small number of observations (7 years) and the data variability.

After seasonal factors are derived, the most recent 3-year period (from January through December or from July through June) is deseasonalized. The average of the deseasonalized 36-month series determines the midpoint of the deseasonalized average band. The standard error of the deseasonalized 36 months is calculated adjusting for extreme data points. The width of the *average range* is twice this standard error.

The upper curve of the *average range* is defined as the average plus the seasonal factors plus the standard error. The lower curve is defined as the average plus the seasonal factors minus the standard error.

Note 7: Movements

Movements of crude oil between PAD Districts are reported on Form EIA-817, *Monthly Tanker and Barge Movement Report*, and on Form EIA-813, *Monthly Crude Oil Report*. Petroleum product movements are reported on Forms EIA-817 and EIA-812, *Monthly Product Pipeline Report*. Net receipts is the difference between total movements into and total movements out of each PAD District by pipeline, tanker, and barge. For survey descriptions and other detail, see Explanatory Note 1.2.

Note 8: Preliminary Monthly Statistics

Weekly data (Forms EIA-800, 801, 802, 803, and 804) are used to estimate the most recent monthly values for the *Summary Statistics* section. Since some of the weekly reporting periods overlap two adjacent months, it is necessary to use weighting factors in the calculation of the monthly values.

To estimate crude oil and petroleum product imports, crude oil input to refineries and production of petroleum products for a specific month, the weekly estimates are weighted by the number of days of that month included in each week, then summed.

End-of-month stock levels of crude oil and the major products (motor gasoline, distillate fuel oil, and residual fuel oil) are calculated in a similar manner, but use only the two weekly reporting periods that cover the end-of-week stocks before and after the end of the month. The end-of-month stock level is calculated by first calculating the stock change between the two weeks. The daily stock change between the two end-of-week stock levels is then calculated. This number is multiplied by the weighting factor of the earlier of the two weeks (the week that covers the last day of the month of interest). This change is added to the earlier of the two end-of-week stock levels to estimate the end-of-month stock level.

Preliminary monthly estimates of domestic crude oil production are calculated as described in Explanatory Note 3.

Note 9: Notes on Tables

Note 9.1 Crude Oil and Petroleum Products Overview statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Crude Oil and Petroleum Products Stock Withdrawal (+) or Addition (-), Petroleum Products Supplied, Total Imports, Crude Oil Imports, Total Exports, and Crude Oil Exports appear as labeled in Table 4. Total Production and Crude Oil Production appear under Field Production in Table 4.

- Natural Gas Plant Production is the sum of Natural Gas Liquids and Finished Petroleum Products Field Production in Table 4.

- Petroleum Products Imports is the sum of Natural Gas Liquids and LRGs, Other Liquids, and Finished Petroleum Products Imports in Table 4.

- Total Crude Oil and Petroleum Products Ending Stocks appear in thousand barrels in Table 2.

Note 9.2 Crude Oil Supply and Disposition statistics on the referenced line appear in Table 1 of the Detailed Statistics, except where noted.

- Total Domestic Field Production, Alaskan Field Production, SPR Imports, Other Imports (synonymous with Imports Gross Excl. SPR), SPR and Other Primary Stocks Withdrawal (+) or Addition (-), Unaccounted For Crude Oil, Refinery Inputs, and Exports appear as labeled in Table 1.

- Crude Losses and Product Supplied appear as labeled in Table 4.

- SPR Ending Stocks and Other Primary Ending Stocks (synonymous with stocks excluding SPR) appear in thousand barrels in Table 1.

- Total Crude Oil Ending Stocks appear in thousand barrels in Table 2.

- Total Imports appear in Table 4.

Note 9.3 Finished Motor Gasoline Supply and Disposition statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.

- Imports, Stock Withdrawal (+) or Addition (-), Exports, and Product Supplied appear as labeled in Table 4.

- Unleaded Percent of Total Product Supplied represents the ratio of finished unleaded motor gasoline product supplied to total finished motor gasoline product supplied, multiplied by 100 and rounded to the nearest tenth.

- Ending stocks are aggregated from ending stocks in thousand barrels in Table 2.

Note 9.4 Distillate and Residual Fuel Oil Supply and Disposition statistics on the referenced lines appear in Table 4 of the Detailed Statistics, except where noted.

the sum of Field Production and in Table 4.

thdrawal (+) or Addition (-), Ex-supplied appear as labeled in Ta-

- Ending Stocks appear in thousand barrels in Table 2.

Note 9.5 Liquefied Petroleum Gases Supply and Disposition statistics represent the aggregation of statistics on ethane, propane, butane, butane-propane mixtures, ethane-propane mixtures, and Isobutane. The statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.

- Imports, Stocks Withdrawal (+) or Addition (-), Refinery Inputs, Exports, and Product Supplied appear as labeled in Table 4.

- Ending stocks appear in thousand barrels in Table 2.

Note 9.6 Other Petroleum Products Supply and Disposition statistics represent the aggregation of statistics on natural gasoline, Isopentane, unfractionated stream, plant condensate, other liquids, and all finished petroleum products except finished motor gasoline, distillate fuel oil, and residual fuel oil. The statistics on the referenced line are aggregated from Table 4 of the Detailed Statistics, except where noted.

- Total Production is the aggregated sum of Field Production and Refinery Production in Table 4.

- Imports, Stock Withdrawal (+) or Addition (-), Refinery Inputs, Exports, and Product Supplied are aggregated from Table 4.

- Ending stocks are aggregated from ending stocks in thousand barrels in Table 2.

Note 9.7 Table 1. U.S. Petroleum Balance

- Lines (1) through (3): Crude oil (including lease condensate) production for *Alaska*, *Lower 48 States*, and *Total U.S.* are calculated by calling the conservation agency in Alaska for Alaskan crude oil production during the month, estimating crude oil production in the United States (see Explanatory Note 3), and taking the difference to equal production in the Lower 48 States.

- Line (5): *SPR Imports* are reported on Survey Form ERA-60.

- Line (12): *Total Other Sources* equals crude oil stock withdrawal (+) or addition (-) plus unaccounted for crude oil minus crude losses in Table 2.

- Line (14): *Natural gas plant liquids (NGPL) Production* equals field production of natural gas liquids (NGL) plus field production of finished petroleum products in Table 2.

- Line (15): *NGPL Imports* equals the sum of the Im-

ports of natural gasoline and isopentane, unfractionated stream, and plant condensate imports in Table 2.

- Line (16): *NGPL Stock Withdrawal (+) or Addition (-)* is equal to the sum of stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate in Table 2.

- Line (17) equals the sum of lines (14), (15), and (16).

- Line (18): Unfinished oils and gasoline blending components *Stock Withdrawal (+) or Addition (-)* equals stock withdrawal (+) or addition (-) for other hydrocarbons and alcohol, for unfinished oils, motor gasoline blending components, and aviation gasoline blending components.

- Line (20): *Other Hydrocarbons and Alcohol New Supply* equals the field production of same in Table 2.

- Line (21): *Refinery Processing Gain* is a balancing item equal to total refinery production minus total refinery input in Table 2.

- Line (23): *Total Other Liquids* equals the sum of lines (18) through (22).

- Line (24): *Total Production of Products* equals crude oil input to refineries plus field production of NGPL and finished petroleum products; plus imports of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of other hydrocarbons and alcohol, unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus imports of unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus field production of other hydrocarbons and alcohol; plus total refinery production; minus total refinery input; plus crude oil product supplied in Table 2.

- Line (25): *Gross Imports of Refined Products* equals imports of LPG plus imports of finished petroleum products in Table 2.

- Line (26): *Exports of Refined Products* equals exports of LPG plus exports of finished petroleum products in Table 2.

- Line (27): *Net Imports of Refined Products* equals the difference between lines (25) and (26).

- Line (28): *Total New Supply of Products* equals crude oil input to refineries plus field production of NGPL and finished petroleum products; plus imports of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of other hydrocarbons and alcohol, unfinished oils, aviation

gasoline blending components, and motor gasoline blending components; plus imports of unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus field production of other hydrocarbons and alcohol; plus total refinery production; minus total refinery input; minus crude oil product supplied plus imports of LPG and finished petroleum products; minus exports of LPG and finished petroleum products in Table 2.

- Line (29): *Refined Products Stocks Withdrawal (+) or Addition (-)* equals the sum of stock withdrawal (+) or addition (-) for LPG and finished petroleum products in Table 2.

- Line (30): *Total Petroleum Products Supplied for Domestic Use* equals total products supplied in Table 2.

- Lines (31) through (35) equal the respective products supplied in Table 2.

- Line (36): *Other Products Supplied* equals the sum of natural gasoline and isopentane, unfractionated stream, plant condensate, aviation gasoline, naphtha < 400 Deg. F for petrochemical feedstock use, other oils > 400 Deg. F. for petrochemical feedstock use, special naphthas, lubricants, waxes, coke, asphalt, road oil, still gas, unfinished oils, motor gasoline blending components, aviation gasoline blending components and miscellaneous products supplied in Table 2.

- Line (37): *Total Product Supplied* is equal to total products supplied in Table 2.

- The sum of lines (38) and (39), stocks of *Crude Oil and Lease Condensate (Excluding SPR)* and stocks held by the *Strategic Petroleum Reserve*, equals ending stocks of crude oil in Table 2. SPR stocks are reported on Form EIA-813.

- Line (43): stocks of *Refined Products*, equals the sum of LPG and finished petroleum product stocks in Table 2.

Note 10: New Stock Basis

In January 1975, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys affecting subsequent stocks reported and stock withdrawal calculations. Using the expanded coverage (new basis), the end-of-year stocks, in million barrels, would have been:

- Crude Oil and Petroleum Products: 1974—1,121; 1980—1,420; and 1982—1,462.

- Motor Gasoline: 1974—225; 1980—263; 1982—244 (Total) and 203 (Finished).

- Distillate Fuel Oil: 1974—224; 1980—205; and 1982—186.

- Residual Fuel Oil: 1974—75; 1980—91; and 1982—68.

- Liquefied Petroleum Gases: 1974—113; 1980—128; and 1982—103.

- Other Petroleum Products: 1974—220; 1980—249; and 1982—259.

- Stock withdrawal calculations beginning in 1975, 1981, 1983 were made using new basis stock levels.

Note 11:

Stocks of Alaskan crude oil in transit were included for the first time in January 1981. The major impact of this change is on the reporting of stock withdrawal calculations. Using the expanded coverage (new basis), 1980 end-of-year stocks, in million barrels, would have been 488 (Total) and 380 (Other Primary).

Note 12: Changes in Petroleum Industry Reporting

Petroleum statistics contained in this report for all years through 1980 were developed using definitions, concepts, reporting procedures and aggregation methods that are consistent with those developed by the U.S. Bureau of Mines. Research conducted by the Energy Information Administration in 1979 and 1980 indicated that changes had occurred in the petroleum industry that were not being adequately reflected in EIA's reporting systems.

EIA reporting forms, definitions, and procedures were modified beginning in January 1981 to describe industry operations more accurately. Unfortunately, empirical information is not available to precisely measure the data shortcomings throughout 1980. However, estimates of the magnitudes of differences in the major

data series are described below to form a basis for comparing 1979, 1980, and 1981 data.

Motor Gasoline

Prior to 1979, the EIA product-supplied series for motor gasoline was consistently about 2 percent lower than the Federal Highway Administration (FHWA) gasoline-sales data series, which is derived from State tax receipts. This difference increased to about 4 percent in 1979 and 5 percent in 1980. There are two primary causes for this growing difference. First, refinery operations, particularly the flows of unfinished oils and the redesignation of some finished products, were not being accurately described on the EIA survey forms. Second, a large amount of gasoline was being produced away from refineries at "downstream blending stations" to take advantage of provisions in regulations governing the amount of lead that could be added. These blending stations were not reporting gasoline production to the EIA until the data system was changed in January 1981.

Quantitative estimates of the magnitude of the difference—in EIA's gasoline product supplied data in 1979 and 1980 have been made by the EIA and the American Petroleum Institute (API). The following table provides 1979 and 1980 data as published in the *Petroleum Statement Annual*, as well as EIA and API estimates of "recast" motor gasoline product supplied. EIA recast estimates were based upon preliminary monthly information in the *Monthly Petroleum Statement*. The ranges displayed in the EIA column reflect uncertainty in the estimates. Also shown are the FHWA motor gasoline sales statistics for those years. EIA has recently published a study of the quality of these FHWA data.¹

¹Office of Energy Information Validation, Energy Information Administration, U.S. Department of Energy, *Error Profile of the Motor Fuel Taxation Data used to Establish and Monitor State Emergency Conservation Targets* (Washington, D.C.: December, 1981).

**Finished Motor Gasoline Product Supplied on Old and New Basis
(Thousand Barrels per Day)**

	1979				1980			
	EIA Reported	API Recast	EIA Recast	FHWA ¹	EIA Reported	API Recast	EIA Recast	FHWA ¹
Jan	6,830	7,230	7,084- 7,246	6,984	6,323	6,789	6,630- 6,791	6,672
Feb	7,254	7,496	7,389- 7,568	7,538	6,596	6,983	6,831- 7,003	6,830
Mar	7,229	7,414	7,301- 7,483	7,316	6,406	6,753	6,607- 6,768	6,713
Apr	7,055	7,300	7,187- 7,353	7,375	6,800	7,014	6,886- 7,052	6,981
May	7,213	7,429	7,313- 7,475	7,428	6,729	6,954	6,823- 6,984	7,044
Jun	7,191	7,483	7,350- 7,516	7,441	6,657	6,966	6,824- 6,991	7,049
Jul	6,902	7,241	7,105- 7,266	7,299	6,743	6,973	6,960	7,132
Aug	7,330	7,546	7,426- 7,588	7,619	6,648	6,841	6,828	7,090
Sep	6,881	7,122	7,016- 7,262	7,232	6,510	6,692	6,962	6,685
Nov	6,791	7,068	6,956- 7,122	7,142	6,234	6,507	6,516	6,951
Dec	6,730	7,106	6,966- 7,127	7,064	6,632	6,948	6,936	6,993
Average	7,034	7,302	7,183- 7,347	7,309	6,579	6,882	6,806- 6,889	6,925

¹FHWA gasoline statistics published in their 1979 Table MF-33G, 08-06-80, contain aviation gasoline as well as motor gasoline. Only motor gasoline data are included in published 1980 data. Consequently, the 1979 data shown above were reduced by subtracting aviation gasoline product supplied quantities as published by EIA in the 1979 *Petroleum Statement Annual*. The 1980 FHWA data published in their 1980 Table MF-33GA, August 1981, did not require this adjustment.

Distillate and Residual Fuel Oil

Distillate and residual fuel oil refinery production statistics through 1980 were adjusted to account for an imbalance between unfinished oil supply and disposition. The reported quantities of refinery inputs of unfinished oils typically exceed the available supply of unfinished oils. It has been assumed that this occurs when distillate and residual fuel oil produced by a refinery is shipped to another refinery, where it is treated as unfinished oil. This oil is then reprocessed rather than used or sold as distillate or residual fuel oil.

For many years (including 1980), the difference between unfinished oil disposition and supply was sub-

tracted from distillate and residual fuel oil production to adjust for this discrepancy. Two-thirds of the difference was applied to distillate, and one-third to residual fuel oil.

Beginning in January 1981 this adjustment was discontinued because there was not sufficient empirical evidence to support it. The following table presents distillate and residual fuel oil refinery production in 1980 as published (adjusted) and on the same basis as 1981 statistics are now being completed (unadjusted) to permit comparison between 1980 and 1981 data series. Adjusted distillate and residual fuel oil product supplied volumes differ from the unadjusted volumes by the same amounts as the adjusted and unadjusted production volumes.

Adjusted and Unadjusted Refinery Production, and Unadjusted Product Supplied of Distillate and Residual Fuel Oils, by Month for 1979 and 1980 (Thousand Barrels Per Day)

Month	Distillate Fuel Oil				Residual Fuel Oil			
	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied
Jan.	3,043	3,108	65	4,646	1,912	1,946	34	3,594
Feb.	2,888	2,945	57	4,869	1,792	1,822	30	3,625
Mar.	3,019	3,026	7	3,671	1,719	1,723	4	3,243
Apr.	2,945	2,978	32	3,048	1,639	1,656	17	2,524
May	3,066	3,093	27	3,025	1,586	1,600	14	2,517
Jun.	3,153	3,187	35	2,743	1,548	1,566	18	2,601
Jul.	3,305	3,344	38	2,601	1,575	1,594	20	2,471
Aug.	3,321	3,359	38	2,799	1,584	1,603	20	2,570
Sep.	3,354	3,306	- 48	2,599	1,627	1,602	- 25	2,584
Oct.	3,251	3,217	- 34	3,085	1,629	1,612	- 17	2,523
Nov.	3,239	3,200	- 39	3,208	1,736	1,716	- 20	2,795
Dec.	3,221	3,238	17	3,725	1,894	1,903	9	3,022
Average	3,152	3,169	16	3,327	1,687	1,695	8	2,834

1980

Month	Distillate Fuel Oil				Residual Fuel Oil			
	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied
Jan.	3,013	3,093	80	3,794	1,771	1,812	41	3,108
Feb.	2,766	2,888	122	3,834	1,773	1,836	63	3,168
Mar.	2,557	2,690	133	3,312	1,584	1,652	68	2,726
Apr.	2,460	2,554	94	2,729	1,595	1,643	48	2,492
May	2,474	2,610	136	2,538	1,509	1,579	70	2,305
Jun.	2,646	2,721	75	2,392	1,575	1,613	38	2,359
Jul.	2,689	2,783	94	2,343	1,480	1,528	48	2,339
Aug.	2,461	2,582	121	2,258	1,444	1,506	62	2,348
Sep.	2,686	2,726	40	2,627	1,495	1,516	21	2,380
Oct.	2,589	2,650	61	2,981	1,512	1,543	31	2,258
Nov.	2,703	2,823	120	3,069	1,579	1,641	62	2,513
Dec.	2,891	3,052	161	3,776	1,660	1,743	83	2,762
Average	2,661	2,764	103	2,969	1,580	1,634	54	2,562

Total Petroleum Products

The imbalance between the supply and disposition of unfinished oils and gasoline blending components is included with other products (line 35) in the U.S. Petroleum Balance (Table 1). These imbalances are reported as negative product supplied in the Other Liquids section.

tion, Supply and Disposition Statistics (Table 2). Since these changes only involve redistribution of the volumes of gasoline, distillate and residual fuel oil, gasoline blending components, and unfinished oils, the total volume of petroleum products supplied remains unaffected by them.

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